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PARK BUILDING.

To identify our location, we present the accompanying engraving of this well-known edifice, which has been for many years one of the landmarks and ornaments of the city of New York. Its beautiful situation, on the Park, imparts an air of sylvan cheerfulness—while its close contiguity to all the great business centres of the city renders it a most desirable location. Here, for many years, has been established the well-known *Scientific American*, whose reputation is not confined to the American continent, but has spread through every country in Europe. Immediately over the *Scientific American* is the office of the

American Journal of Mining,

which is destined to become as widely known, and as highly appreciated, not only in the United States, but also in every country in the world—at least we judge so, from the manner in which it is received by the community. One department of the office will be set apart for the reception of specimens of all minerals and metals; and contributions of rare and valuable ores are most respectfully solicited from every part of the world. It is the object of the JOURNAL to present the vast and varied mineral metallic resources of the continent, and nothing can more directly further that object than a complete collection of specimens, placed in such a public and conspicuous place. Great attention will be paid to the assaying and analyzing of minerals for miners and others, and prompt returns made. Engraving and Lithography will be executed in the highest style of the art—while Job Printing of every description can always be obtained at the office of the JOURNAL.

The Land of Legendary Wealth.

Has it never occurred to the hardy and adventurous men who make up our pioneer community, that they are dwelling on the confines of a region that for centuries past has been the supposed seat of immense mineral riches? Do they know that they are hovering on the borders of a land, in the unexplored depths of which, the generations of the past placed the fabled El Dorado, with its lodes of metallic silver, and mountains of gold? And yet, such is the case. In the awful wilderness that stretches away on the southeast to the Rio Colorado, embracing in its desolate wastes the Valley of Death, encircled by the Amargosa—river of bitter waters—lie those golden fields that so excited the cupidity of the early Pacific

explorers, and dazzled the imagination of Cortez and his followers. This is the realm toward which the Indian legends pointed, and of which the Spaniards dreamed. Marvellous were the tales that were told of its wealth, and many the intrepid prospector that perished seeking to penetrate its mysterious solitudes. Nor has this belief passed away with the generations who first entertained it. It still maintains its foothold, not only in the popular imagination, but to some extent also among scientific minds. In the Summer of '59, when but little was thought and still less known of the resources of Washoe, we met Judge Crane, first delegate from Nevada in Congress, on the spot where Carson City now stands. He was an enthusiast on the subject of the wealth of the Great Basin, and for hours we listened to him as he descanted on his favorite theme. There, said he, pointing toward the southeast, over the mountains and across the deser's beyond, is the true land of gold. There will yet be found many a Comstock lead, and such store of the precious metals as never existed in Mexico or Peru. There, before many years, will our people gather, and there will yet be the seat of opulence and empire. While yet enlarging earnestly on this topic, the stage came along, and the Judge, getting aboard, departed for Gold Hill. That night he died; and though some may suppose it was a sort of prophetic foresight that enabled him to peer into the future, and discern the hidden treasures of the great southern wilderness, we opine it was mostly the result of the intelligent and persistent enquiries that for years he had directed to this subject. Crane was a well-read and scholarly man, conversant with the history of the Pacific Coast, and the opinions of the early Spanish writers and explorers, having himself traveled much over this particular region of country; and from these sources, no doubt, derived the idea so earnestly entertained and so ardently promulgated to the day of his death. Whether this idea was well founded or only one of those illusions ever found afloat in the popular fancy, haunting, sometimes, too, like the philosopher's stone, the metaphysical mind, is a matter that will soon be brought to the test of reality. With the curiosity and cupidity of our people aroused, it will not be long until this little known and desolate region, about which so many strange legends have been told, will be penetrated by our bold and enterprising prospectors, and all its hidden secrets be revealed to the world. In the discoveries lately made along its northern border, we have partial confirmation of these gorgeous tales, and abundant encouragement to seek for their further realization in the regions beyond. The mines of Silver Peak and Red Mountain, standing on the very verge of this unexplored land, surpass all others in their obvious and illimitable wealth. That there are others equally good, still further out on the desert, it is reasonable to suppose; and that such will be found before many months have passed away, there is equally good reason to believe.—*Nye County News.*

What is the Shape of the Earth?

M. von Gumpach, in his work on the True Figure of the Earth, asserts that the earth is not a prolate ellipsoid, or, in other words, that it has not the figure of an orange, but of a lemon. Now why, according to Newton and the dominant school, has it the figure of an orange? First, because in measuring various arcs of an earth's meridian it has been found that the degrees are longer towards the pole than near the equator. Secondly, because the second's pendulum is longer at the poles than at the equator, its length being a function of the force of gravity, and increasing with it; and, thirdly, because in consequence of the earth's diurnal rotation, its particles at the equator are actuated by a centrifugal force which is zero at the poles. Now none of these arguments are theoretically conclusive; as to the first, because a prolate figure is infinitely more favorable to an increase of length in a polar degree than a compressed one, as anyone may see by merely taking the trouble of using his compasses and describing on the same equator, first, a compressed ellipsoidal quadrant, then a circular one, and then a prolate ellipsoidal one. As to the second argument, because if on the one hand it may be argued that gravity increased at the poles, because in a compressed ellipsoid the distance is shorter, on the other hand it may be argued with equal force that gravity increases at the poles of a prolate elllipsoid, because of the greater quantity of attractive particles accumulated there. And, lastly, as to the third argument, it may by replied that in a rigid body like the earth the effect of the centrifugal force must be zero, and that if it were not, the earth would by this time have become as flat as a pancake by constant rotation. The origin of the idea of this action of the centrifugal force lies in the purely gratuitous supposition that the earth was once a fluid mass, an opinion in favor of which there is not a particle of evidence; nay, we have evidence to the contrary, for all the aerolites that have fallen on our earth, and which may, within the compass of our present knowledge at least, be considered as abortive planets, are solid.

Mining Summary.

Idaho.

The Owyhee *Avalanche* gives the following items in regard to Flint District: "Mr. A. J. Lytle informs us that the Lone Jack ledge, a continuation of the Morning Star, discovered in February, by John Boyd & Co., has been negotiated to Mr. Coleman at $35,000. The Excelsior lode, owned by same parties, has also been negotiated at same figures—money to be paid in June. Among new discoveries made this spring, are the Forrest, Daylight, Judge Hays, Midas, Regulator, and Owyhee Chief lodes—all claimed to be rich in silver. Large quantities of ore are out at the different shafts, sorted and ready for crushing—at one shaft on the Rising Star, as much as three hundred tons that will go $150 per ton Snow is disappearing fast, and miners are preparing for systematic work this summer." . . . The Red Bluff *Independent* says: "Major Reading showed us lately specimens of Owyhee silver and rock, which was 'fair to look upon.' The silver was in two neat little bricks from the Poorman, and were a present from a gentleman just from the silver region of Owyhee." The ore was from the Oro Fino ledge, located about two hundred yards from the Poorman, and assays over $1,500 to the ton. . . . A correspondent of the Sacramento *Union* says: "In the first place, the Red Warrior mines, if not extensive, are rich; in the range of hills between this place and Rocky Bar are gold quartz leads the entire distance of, say three-quarters of a mile in an air line (the length of the same up and down Red Warrior creek I should judge to be, say one and one-half miles). These ledges are innumerable, and where they have been properly worked have proved themselves remarkably rich. Parties last summer, with the simple arastra process, have made $4,000 and $5,000 each, by crushing selected rock, of course, because none but the best should be sent to be crushed by so slow a process as this quaint old Mexican style. The Golden Eagle ledge, the Burnt Pilot and the Live Oak are the ledges that have been so productive, and are owned by parties who have no interests in any of the steam mills located here, although the Vista Company, of New York, I believe, is interested in the first named. This last named company has undoubtedly some very rich leads; prominent among them, to my own knowledge, are the Victor, New York, Golden Eagle, Cuba, Gem of Alturas, and others, that in a very short time will speak for themselves. Unfortunately, this company's mill has now been idle for nearly six weeks, owing to the non-arrival of shoes and dies for its grinders; and allow me here to state that the Victor mill is a mill worthy of the praise of all quartz miners—complete in all its appurtenances, with its fifteen stamps and Moore's grinders attached, it can eat up more quartz and save gold better than any mill I have ever seen. Under the supervision, also, of Captain F. O. Nelson, the resident superintendent, everything moves like clockwork, and the same systematic order observable as though the mill itself was a man-of-war. Owing to the condition of the roads, I can not state how soon it may start again—probably within a month; and its miners are working night and day on several leads. Another lead, the Wide West, has given our camp a fresh 'starter,' by its extraordinary richness, within a few weeks past. The Benson mill (J. B. Harris, Superintendent; Wesley Behm, architect) and the Wide West and their ten stamps are fed with two hundred and forty ounces of quicksilver during the twenty-four hours, the rock being that rich as to require it; and about $1,000 per day is good pay, when the mine, wood and water are so convenient. Adjoining this claim is the Burnt Pilot, before referred to, owned by Warwick, Johnson & Biven, of eight hundred feet, for which the parties owning have refused $25 per foot. Now, in referring to the companies here who have mills, I know of none of their stock in market. I was here when the mills came in, and am sufficiently acquainted with the parties owning them to know that they came here to make money out of their quartz, and not by selling stock. The Farnham Mill was an exception, and that has been attached for all it is worth, and Rasey Biven placed in charge of the same until next Court term. Other ledges belonging to the Benson Mill are being developed finely. The Wide West extension is, without doubt, equal in richness with the Wide West discovery, and the tunnel now running for it is in some three hundred feet. The Knickerbocker, Brightside, and Moro Castle ledges, in the vicinity of the Victor, New York and Webster ledges, are proving themselves also; on the former of which a tunnel of one hundred and twenty feet has been run in, and the ledge is an established fact. The Red Warrior and Bear Creek tunnel is in over 200 feet, and will have as far again to run before striking pay rock. This tunnel is eight feet high in the clear, four feet wide at top in the clear, and five feet wide at bottom in the clear. Its timbers are all squared, and it is as good a specimen of mining work as could be found at the Gould & Currie mine of Washoe. The workmen are unable to drive over two feet in the twenty-four hours, and although such labor is expensive, yet the proprietors—Wulff & Biven—have been long enough at Red Warrior to know when they have a good thing Their blacksmith shop, work shops, etc., together with the building and tunnel, form the chief attraction for visitors at Red Warrior. The Farnham Mill, as it is called (as he is the man that played the devil with it), but the real name is the New York and Idaho Gold Mining Company, is situated about one thousand feet distant from the above mentioned tunnel, and will probably be used to crush rock from the same, if they do not pay up. Many of us, your correspondent among the number, would like to see some of the funds of that company and have it pay its just debts, at least, though it is well known that its Superintendent last summer incurred liabilities not in the least legal. They have until June to settle up their affairs. . . . Other Districts.—We have had frequent communication with Yuba district during the winter. As a part and parcel of the South Boise country, Yuba deserves a passing notice, or rather a slight history of its rapid progress as a great quartz district. The Atlanta ledge has made considerable stir among quartz fanciers, but it is in law, and therefore 'no very good, John.' The John Bascomb is a favorite ledge, and specimens I have seen from the Sophia Tracy assures me that your correspondent has 'two hundred of as good feet as there are in Yuba.' I am not in the Havermeyer ledge; I wish I had some of it. This ledge, I think, will eventually eclipse all others at the Yuba, both in extent and richness; an immense tunnel is now in, and men are constantly at work in its further development. The quartz at Yuba is mostly owned by residents of Rocky Bar and this place, among whom may be mentioned Wilson Waddingham, J. B. Harris, Captain F. O. Nelson, Major J. P. Speer, Nordheimer, Marks and others, and Yuba will rejoice in several steam mills within a few months. Volcano district can hardly be classed with the South Boise, although it bears good quartz, and a mill is being erected by Wm. R. Defrees, an old Californian. Doc Hoover, formerly of Calaveras county, I believe, is in charge of the same, during Defree's visit at the East. Near this district is still another, called East District, the prominent ledge of which is the Iris, owned in New York, and upon which work is progressing rapidly. The Ross District, named after the well-known Ross ledge, I believe is the last of the districts this side of Boise City that I have to mention, always excepting for the last the Bear Creek District, 'right over the hill' from Red Warrior, which boasts of two little towns called respectively Clifden and Rocky Bar, famous for its Adah Elmore lead, Confederate Star, Idaho, Emmet and other well-known leads, and upon which three mills have been running constantly the entire winter, notwithstanding the bad weather. The Wilson Waddingham Mill is the most complete mill on Bear creek, and is paying its owners largely. It is running better than ever before, as it has been recently overhauled and improved with new shoes and dies and pans, and is almost a new mill. On my last visit to the Rocky Bar tribe, some three weeks since, I was shown through the mill by John B. James, and was well repaid for the visit, as well as a visit I made with him to the mine. Over one hundred tons of rich paying quartz is kept constantly at the mill, and one hundred and fifty tons at the quartz house at the mine. The miners were running three shafts on the Confederate Star, and the rock from this lead is equal to the best. I have mentioned the enterprising character of Waddingham in a former letter. He is now on a visit to New York. His business during his absence is in good hands, and probably as well and as successfully managed. The Idaho mill is one of those Chicago built mills that I would not trade a good arastra for it; and yet it makes money like dirt and can't help it, on account of the richness of its rock It embraces 1,200 feet, and has a standing offer of $150,000 for the same. Some of the owners of this lead are extremely avaricious, and would not be particular in jumping all the leads in the Territory if they had a chance, and which they commenced to do with the Emmet, and which in time will prove a bad job for them. The Cartee mill is now in the hands of Major J. P. Speer, and although this mill is of a very inferior kind, yet it is also paying largely, and the rock is splendid. Indeed, all three mills are making money, and the coming season will see innumerable arastras running on this creek also, by men who haven't yet seen the immense wagon loads of greenbacks that were to cross the Plains to buy them out, and therefore they have wisely concluded to go at work themselves, and thus show they have some sense left. The coming season will be prosperous for the entire South Boise region. The drones will have about all left, and the parties now in power have sufficient vim to work claims to advantage."

California.

Nevada.—The *Transcript* says: During the past winter the first cement mill erected on the Blue lead north of Greenhorn creek, was built by Hagadorn, Larkin & Co., at Hunt's Hill. Since that time Carney & Tucker have finished a splendid eight-camp mill, which is run by a hurdy-gurdy wheel. The Eastern and Gougeye companies have lumber upon the ground for mills, and expect to have them ready for work early in the spring. The Blue Cement lead

crosses Greenhorn from Bunker Hill to Hunt's Hill, and then runs parallel with the creek. It has been prospected as far north as Jacob & Sargent's Green Mountain claims. In many places, as in Carney & Tucker's claims, the top has been washed off by hydraulic mining, and the lead is for some distance laid bare. At other points it is worked by tunnels. The channel is from one to three hundred feet wide, and extends entirely through Little York township to Gold Run, in Placer county. On this lead, within the past two years, some twelve or fifteen new mills have been built, and every week thousands of dollars are taken out, the proceeds varying from eight hundred to six thousand dollars to the mill. We do not know of a single company which has erected a mill and failed in getting good pay. . . . The Grass Valley *Union* says: We learn that Kearney & Co., prospectors, have struck some rich rock on the third extension of the Star Spangled Banner ledge, which is located near where the lead crosses Little Deer Creek. They have good reason to believe that their claim will prove as rich as the famous Star Spangled Banner lead. . . . The Grass Valley *National* says: We learn that the ledge of the Houston Hill Company still continues to pay the enterprising owners large dividends. Thirty-four and a half loads of quartz yielded $202 50 per load, a few days ago. The owners of the ledge now are: A. H. Heuston, Capt. S. W. Lee, S. D. Bosworth, Smith Brothers, Joseph Woodworth and the Coleman Brothers. Capt. S. W. Lee has purchesed the interest of William H. Rodda (one-sixteenth), and is now the fortunate possessor of one-eighth of the above valuable mine. The interests now pay monthly divideuds of one thousand dollars, and in a short time will be up to fifteen hundred dollars. The company have in their employ one hundred men about the mill and mine.

Calaveras.—The Copperopolis *Courier* says: We are informed that business in Angels is looking up. A number of enterprising capitalists have recently purchased some of the most promising quartz claims in the district. A few of the claims are said to be yielding handsome profits upon the capital and labor expended in working them. We are informed that three new twenty-stamp quartz mills are about to be constructed at Angels, in this township. . . . The number of mining ditches in Calaveras county, according to the report of the Surveyor-General, is 58; miles in length, 594; total value, $120,600.

Auburn.—The Auburn *Stars and Stripes* says: The existence of numerous well-defined quartz leads in the vicinity of Auburn is well established. That some of them contain the precious metals in paying quantities is also pretty certain. That many of them could be profitably worked, if the requisite capital could be obtained and used with a reasonable degree of skill and discretion, is believed by those who have the best opportunity of judging. There has never yet been an organized effort, carried out to any extent, to develop one of the mines, so as to render certain what is yet considered problematical. It is now proposed by some of our citizens to form a company upon the plan of one recently organized in Grass Valley for a similar purpose, to take hold of some ledge in the vicinity and prospect it thoroughly. In the Grass Valley company there are 100 shares; each stockholder pays $5 on signing the constitution and by-laws, and $1 weekly thereafter, and is limited to one share. A similar company, with initiatory payments of, say, $2 50 or $3, and weekly payments of 50 cents, would furnish the means to perform all the work required to fairly test one ledge.

Eldorado.—The Placerville *Mirror* says: The Harmon Company have, we are glad to state, struck a ledge in their new shaft, five feet in width, gold visible all through it. This mine is now in the hands of Eastern capitalists, and under the management of Superintendent Epley—a thorough practical miner. Under his supervision a new mill has been erected, with new machinery throughout.

Placer.—The Auburn *Stars and Stripes* says: The Dardanelles Company, near Forrest Hill, we understand, cleaned 532 ounces of amaigam last Saturday. . . . The Dewey claim, located at Bath, clean up from $1,200 to $1,400 weekly over the above expenses. Several other claims in the above localities are doing equally as well.

Shasta.—The *Courier* says: The Potosi Company will have their mill running in two weeks. The Eureka Company are prospecting their lodges—one called the Pettit, another the Eureka, and another the Mount Shasta—all within a half mile of the Potosi mill, and are getting splendid prospects, so far finding rock like the Potosi, which all concede to be rich enough. From present appearances, Muletown will be the leading quartz mining camp in the county, contesting, if not carrying away, the laurels from French Gulch.

Excelsior.—The Virginia *Enterprise* says: M. M. Frederick, of this city, arrived here day before yesterday from Excelsior, and by him we are furnished with the following items of news from that new and promising mining camp. What Frederick says in regard to the district is perfectly reliable in every respect. The snow is now about six feet deep on the level in the vicinity of Summit City, but there are places where it has drifted to a much greater depth. It would be of little use for persons intending to prospect for claims to go to the district at present, or sooner than six weeks from this time. They who already have their mines located and are acquainted with the country can, of course, go as soon as they please. Little prospecting can be done until the snow goes off. Winton & McCarthy's Mill (the R. & M. Mill) is running on from the Confidence Company's claims, on the Pacific lead, and good results are being obtained. Frederick brought in two bars of gold from the Pacific ore. The rock averages over $60 per ton. The company are steadily at work upon their claim taking out ore. Work is being done on the California, Indian Boy, Excelsior, Fredonia and some other leads; also, on the Enterprise claim, on the south side of the river. About eighty tons per week of very rich rock is being taken from the Enterprise, and in running a cut for a drain they have just struck it very rich in a new place on their lead. Parties having freight that they wish to get in to Summit City should go *via* the Henness Pass route. Freight may be taken on wagons as far as Webber's Station, thence on sleighs to Summit City. Frederick thinks now is a better time to take in freight than a month or six weeks from now, when the snow begins to melt. Frederick's sawmill is about to start up, and he will have lumber in the Summit City market within two weeks. . . . Two or three days ago the Gougeye Company, at Hunt's Hill, discharged a blast of fifty kegs of powder. In their claims the gravel banks above the cement lead pay well for working by the hydraulic process, and their object was to loosen this surface ground in order that it may be more easily washed. A tunnel was run sixty feet into the bank, and then a drift was made at right angles with the tunnel. In the drift the powder was placed in boxes and as closely confined as possible. The tunnel was then blocked up and a double fuse run to the surface. The blast shook the ground like an earthquake and loosened up thousands of tons of gravel. When this is washed off the cement channel will be laid bare and may be easily obtained for crushing in the mill. . . . The Mammoth quartz ledge is located near Deer creek, about two miles above town. The company have run in a tunnel striking the ledge eighty feet below the surface. They have already run across the ledge without striking the wall. The rock is hard and filled with rich sulphurets. As soon as a sufficient quantity of quartz is obtained for a thorough test, a crushing will be had.

Colorado.

The *Journal* says: "COLORADO ORE REDUCING COMPANY.—This is the name of the company formed by Mr. Dubois to put up a Keith Mill for custom ores. The paid-in capital is $65,000; the works are to embody all the improvements suggested by three years use of the Keith Furnace, and the job is to be proceeded with immediately. The building will be 69 feet by 90, with a lean-to along one side for shaking tables, making the whole structure on the outside 60 by 100 feet. The furnace will be 26 feet high and 18 by 9 in size, the walls included. The flue is to be a straight brick stack, rising 60 feet. The room for grinding will be tight, also the room for burnishing. The desulphurized ore is to be conveyed aloft by a fan-blower, which will cool it at the same time. There will be 16 shaking tables, and the capacity of the works will be from 4 to 6 cords a day. The building is to contain blacksmith and carpenter shops, and office, and to be located just above Fields' House, on the creek, against the bank, like Keith's mill. Thirty feet width of the ground floor only will be on the creek level, the other part, also thirty feet wide, is to be raised 14 feet. Through this part will be a pass way for teams that will get up there by using the side of the hill, as at Keith's mill. Way at the backside, in the bank, will be a row of bins for drying ore. Into them it will be thrown from the wagons, and hot air conveyed under them in pipes that pass through the furnace. Conveniences are to be arranged for carrying off the dust. Altogether we expect to see a nice and complete and paying mill of this inside of four or five months." . . . The Central City *Miners' Register* says: "On the 6th of March, Clark & Co., bankers, shipped, as the result of one week's purchase, four hundred and thirty-four ounces of clear retort. In addition to this, Mr. Fitzpatrick, of the Gunnell Company, shipped a large amount, figures not known. Other parties have shipped, through Ben. Holladay, between two and three hundred ounces in the same time. For the next remittance, to be made in a day or two, there will be about two hundred pounds of gold and silver bullion from Lyon's works, and about six hundred ounces gold retort, from various mines in the vicinity. It is expected, now that all serious difficulties in the way of successful work at the Lyonsville smelting works have been overcome, that from one hundred and fifty to two hundred pounds of bullion, will find its way into New York market every two weeks." . . . On a later day the same paper says: "Clark & Co. shipped yesterday morning five hundred and fifty-three ounces of gold retort, exclusive of that shipped by express, and which necessarily passed through their hands. This does not include the promised bullion from the smelting works. B. P. Frink entertains the impression that this amount will be largely increased the coming week." . . . The section in which lumber is found in Colorado has twenty-five saw mills, and ten flour mills have been set up within the past few years. The quartz mills in the State are counted at over one hundred and fifty, costing $40,000,000. They should average, if all were running on medium ores, not less than $23,000,000 per year. Wages rule at $5 per day. Mr. Loveland, a resident of Golden City, is soon to erect a blast furnace and rolling mill at that point. The mill is to turn out rails for the road that is to be constructed between Denver and the towns of Central and Empire, passing through Golden City, and probably furnishing one of the many links in the overland railway to the Pacific. . . . "During the last ten days," says the same paper (C. C. *Register*, March 13), "we have become acquainted with numerous arrivals of capitalists and business men from the east, and even from the old country, intent on examining for themselves the character and quality of our mines, with a view of investing in them on even a larger scale than has yet been attempted. In all such cases, we believe, with scarcely an exception, entire satisfaction has been given, and, in some instances, negotiations have been commenced for the purchase of valuable mineral properties. We are assured, too, that this is but the advance guard of quite an army of speculators and solid men who are preparing to seek Colorado as the best investment for capital of any mining country on the continent. Since it is certain that even besides Lyon's and Keith's, many other new processes for the saving and the collection of the precious metals are being introduced with plausible success, the great drawback, hitherto, to the success of our mining interests is now effectually removed. It is evident that a new era is about to dawn upon us. Not only are our old miners encouraged, but even the desponding, in view of genuine indications, are going to work with renewed hope. Prospecting is being done, even in the old regions, with astonishing success. The new mining law, in spite of all that has been said against it, has evidently given a new impetus to that important branch of our mining interests. Some long abandoned mines are being opened again with promising success. Mills that have stood idle all winter, are now being started. Many large companies which had suspended operations, waiting, like Micawber, 'for something to turn up,' have ordered the recommencement of operations on a larger scale than ever."

The Denver *Gazette* of March 22d speaks very hopefully of the future of Colorado. . . . The Central City *Register* of March 16th, says: At one establishment on Clear Creek—we refer to the mammoth mill conducted by Behr & Keith—the average yield for nearly a month past has been over *three hundred ounces of gold* per week, and valued at *five thousand four hundred dollars*. The gross expense for crushing, amalgamating, and handling ore is estimated at only $600 per week; the ore producing say an average of $500 per cord, which is less than any has yielded treated by their process. When these works shall have been completed and their capacity doubled, as is now being rapidly done, the yield may be multiplied by two. In a short time, we can safely estimate the production of gold from this establishment alone at $2,000 per day, or $600,000 per working year of 300 days. The Keith process is also in successful operation at Gold Dirt in this county, yielding satisfactory returns, though we are at present unable to give the figures. Other similar works are being commenced and projected in various localities. There is no doubt that the total yield from this source alone will amount during the year to many millions! Lyon's imperial success is too well known to need recapitulation. His extensive works produce bullion by the hundred of pounds, and will soon be estimated by the ton. And then his process is capable of saving all—lead, silver, gold, copper, and everything valuable contained in the ore. Thirty per cent., or nearly one-third of his bullion is gold, and he will in future furnish to Clark & Co., bankers, for shipment, 200 pounds of bullion every two weeks, except in case of serious interruptions, arising from accidents to flues, furnaces or machinery. Only think of it—at this rate, over two and one-half *tons* of "the ringing metals" for the year! Or, in value, some one-half million of dollars. And when we remember that Lyon is projecting four additional furnaces of equal capacity to those now employed this season, to say nothing of other parties about duplicating his works, we can safely count the product from the smelting process, too, during the year at many other millions of dollars. In brief, without going into further details, we have ascertained that 1,000 ounces of gold retort was shipped from all sources for this county during the week ending the 6th inst., and for the week ending the 13th inst., the shipments increased to 1,400 ounces in gold. . . . . Speaking of the operations of the Hale Company (of Boston), on the Kelley Lode, Trail Creek, the same paper says: The process used is a recent invention called the Collins Crusher and Amalgamator, the first consisting of a circular iron pan about four feet dia-

meter, the outer half of the circle being grooved to admit the action of four immense balls, each weighing one thousand pounds. The pan revolves under the rapid rotary motion of these balls, they being driven by means of stems attached to the motive power. By this machine the ore is ground to a certain fineness and prepared for a set of mullers or stone amalgamator, similar in construction to the Hepburn pan. This treatment applied to the first test, however, betrayed the fatal deficiency so common to all pans made of iron, that it *would* precipitate and retain about all the copper contained in the ores, and this, of course, went into amalgamation with whatever of the precious metals could be persuaded to unite therewith. This difficulty was finally overcome by the use of shaking tables of the Keith pattern. The second trial produced nine ounces of gold from one and one-half tons of Kelley ore, taken from the depth of forty feet, which we consider extraordinary. Average specimens from this lode recently assayed by Behr & Keith, gave $301 gold, and $12.10 silver, per ton.

Nevada.

The Comstock.—The Virginia City *Enterprise* discourses thus of the "Comstock mystery:" The Comstock is a mystery, and neither science nor the patient industry of the miner has yet been able to solve it. Concerning the formation of the mighty deposit, a variety of hypotheses have been advanced from time to time, but they have been disproved almost as soon as conceived, and we really know but little more of the Comstock to-day than when the first ton of ore was taken from the vein, nearly seven years ago. Whether it is composed of one or more ledges —whether, if consisting of more than one, these ledges unite at a depth within the reach of man—whether the dip is uniformly eastward or curving irregular—whether it has been displaced by internal convulsions or the action of the elements, or remains where it was originally formed—whether its riches will increase or diminish with its depth—whether it continues north of the Ophir or south of American Flat—whether the paying points are "chimneys," containing all the wealth of the vein, or guides to a deposit of uniform richness far beneath the surface — are questions still left to conjecture. Yet, recent developments have opened the way to the solution of many of these doubts, if nothing more; and if we cannot hope to learn within the next ten years that the Comstock is a "slide," we have a fair prospect of being informed within as many months that the vein is productive in claims where it was considered barren, and that its riches increase with its depth. . . . The same paper says: Old Washoe is all right yet. It is all well enough to talk of Montana and New Granada, but those who expect to find in those regions better opportunities for acquiring fortunes than are lying around loose here will be most grievously disappointed. There have been several Comstock panics, but the old lead has always come out right; and now it is coming out "righter" than ever. The Ophir Company (our information may be relied on,) have struck a pay streak in their lower level nineteen feet in thickness, the ore contained in which will mill $100 per ton. This is good news for everybody. . . . The Gold Hill *News* has the following "important-if-true" item concerning a new strike: Another rich strike has been made in the Ophir works, but, we understand, on the grounds of the Mexican Company. The strike was in the ninth level, which is the lowest point yet attained in these mines, and is between 600 and 700 feet deep. The strata or pay streak is said to be some fifteen feet in thickness, and is exceedingly rich. We were informed that the ore was as rich as the best taken from the mine in its best days. As yet no particulars can be obtained, but sufficient has leaked out to assure us that something very good has been struck, and that the Ophir and Mexican will soon be up in figures. . . . The fire which has been burning in the timbers of the Empire mine, Gold Hill, for the last two days, has at last been put out. The following are the particulars as stated by the *Enterprise*: On Saturday, March 10th, at about noon, one of the miners in the 250-foot level met with an accident by which one of his legs was broken, and during the excitement of getting the man up from the mine one of the men left his candle burning in such close proximity with the timber that it caught fire, and before the men returned from dinner the mine was filled with smoke, and three men who were engaged in retimbering the shaft at about 150 feet below where the fire occurred, were almost smothered with smoke before they could be hoisted out. An attempt was at once made to put the fire out, but owing to the smoke all efforts failed to quell it. The next remedy was to cover up all the shafts that had any connection with this mine, and by this means smother the fire out. The shafts were securely planked over and dirt put on them in order to exclude all air, but during Saturday night the shaft became filled with gasses which finally took fire and caused a sufficient explosion to throw the covering from the shaft, the flames shot up to the top of the hoisting works. This fire, however, lasted but a moment. The timbers of the shaft, however, caught fire and were burnt out for some thirty feet down. Great fears were entertained at this time lest the fire should spread from that mine to the Imperial, Eclipse, Bacon and Consolidated, completely destroying all of the mines in what is known as Gold Hill proper. The shaft was again covered over, and after a consultation being held between the mine owners and the firemen of Virginia and Gold Hill, it was resolved to remove that portion of the roof of the building over the shaft and to uncover the shaft and throw in a couple of streams of water During the night, all the preparations were completed, and by order of Chief Williams, Eagle Engine No. 3 and Confidence No. 6 were on hand. The shaft was opened and two streams of water sent down. In a short time after the introduction of the water, McIntosh, of Engine No 4, and McMahon, of San Francisco, were let down the shaft and explored the burnt district as far as was possible. This morning Lee, of Liberty Hose No. 1, Gold Hill, and McIntosh again descended the shaft and found that the fire was all smothered out. . . . The *Enterprise* of the 7th announces the inauguration of Swansea smelting in Nevada through an experimental furnace holding about three tons. Five hundred pounds of argentiferous galena was the first charge, and in an hour 150 pounds of metal were drawn off. It was quite pure, but would have to be melted over before it could be run into pigs. A large furnace was to be erected. They are lined with clay from the east wall of the Comstock Lode. We do not understand the difference between smelting as carried on at Swansea and as carried on in Germany or other parts of the continent, although we suppose it is that naturally obtaining between copper and gold and silver smelting.

Lyon County.—From the Dayton *Sentinel* of February 24th we obtain the following: A party, consisting of M. S. Henley, C. Sherlock and W. M Byron, left Dayton on the 10th instant, for the purpose of prospecting for gold placer diggings in the foothills of the Virginia range of mountains, about twenty-five miles north of Dayton. The party returned on Tuesday last without having found the particular object of their search, though Henley has produced numerous curiosities, and with which he declares himself well satisfied numerous specimens of crystalized gypsum, remarkable for uniform and curious shapes; fine samples of flint agate and a number of geodes, some detached and others encased in scoria. Near the junction of the Truckee river and Pyramid Lake, and on the north side of the Lake, an extensive ledge of fine marble was found. The ledge was fully a third of a mile in width, and cropped out as far as the eye could discern. The marble on the north side of the vein is of a deep blue color; on the south, a clear white; while through the ledge the colors combine in a beautiful variety of shades and shapes. The marble is pronounced by competent persons equal to the celebrated Stockbridge marble, of Vermont.

Reese River.—The Reese River *Reveille*, of the 5th inst., says: There were received, on Saturday, of crude bullion for assay, by J. S. Curries, 2,400 ounces, and by the office of the National Bank, 1,100 ounces.

Silver Peak.—The newly discovered Silver Mining District of Silver Peak, Nevada, is thus described by the Nevada *Enterprise*: Where is Silver Peak? It is in the intersection of the 38th parallel of latitude with the 118th degree of west longitude, in Nevada —a prominent point in that mountainous region, springing to an altitude of one thousand feet from the plain in which it is situated, and standing nearly a mile above the ocean level. It is distant from Stockton, California, one hundred and twenty miles, and, lying on the main road to that locality—the best on the Pacific slope—is easily accessible. It appears, says the *Enterprise*, that when the good genii of the mines were depositing their abundant stores of the precious metals in the hills of Nevada, they came to the borders of the valley of death, and although having silver enough to enrich the mountains of a continent, built the protuberance of Silver Peak, and hid all their treasures beneath.

Oregon.

The Oregon *Reporter* states that some late prospects have been found in the quartz lode discovered by Devins and Funk, which are astonishing. The lode is a very wide one, consisting of three strata of rock, differing in apparent character, but all containing silver in large proportion, as the tests applied certainly determine. . . . The Oregon papers are telling big stories about discoveries of copper ore. Here is the last: About 25 miles east of La Grande, on the western slope of the Powder river mountains, there is a ledge of pure native copper. The owners of the ledge have sunk on it to the depth of 25 feet. At that depth the ledge is 60 feet in width. The ore consists almost entirely of copper—in fact, it should not be termed copper ore, but the pure metal. . . . Late news from the Santiam, though not decisive, is very encouraging. A party who came down recently, report that the mill is crushing 6 to 10 tons per day, and that the amalgamating pans exhibit prospects quite as good as has ever been expected. . . . The following is from a correspondent in Oregon: Every one is setting his house in order for the spring stir and bustle concerning Montana, Blackfoot and Kootenai. The navigation of the Columbia is now open, and the traveling in the east country is again practicable. Portland is bestirring itself to secure the trade with those regions, and it is thought by those whose guessing I consider somewhat akin to prophecy, that she will succeed. The Ocean Steam Navigation Company has lately sent Vice President S. G. Reed to the east, to confer with the managers of the Northern Pacific Railway, with a view to induce them to commence operations on the western slope, and particularly to construct the road over the stretch of country between White Bluffs on the Upper Columbia, to Pen d'Orcille Lake. The distance between these points is about 150 miles, over what is represented as a good grade. Upon the lake it is proposed to build a steamer, which can navigate that water still 60 miles further east. These connections being established, we would have by railway and the navigation of the Columbia river and the lake, good transportation for a distance of nearly 400 miles in an air line from the tide-water of the Pacific. Mr. Reed goes east thoroughly prepared to demonstrate the feasibility of this work and the advantage to the company and the country in breaking ground upon it at once.

Arizona.

The *Alta*, of March 19th says: "By the arrival of the mail from Prescott and La Paz, we have later news from the Colorado Valley and the interior of Arizona. The mail between San Bernardino and La Paz, a single mule affair, and totally inadequate to the wants of the country, will probably be drawn off soon, as the sub-contractors have not obtained their pay from the contractor, Major Posten. Whether he has received his pay from the government or otherwise is not stated. This would occasion serious inconvenience to miners, and all parties doing business on private or government account east of San Bernardino. A mail coach ought to be put on the route from San Bernardino to La Paz immediately. The mining news from the vicinity of Prescott is very favorable. The shaft on the Vulture Ledge (gold), at a depth of forty feet, shows richer rock than ever before struck in that section—richer, by considerable, than that at the surface. Tyson's mill is doing well crushing this rock. The United States is also turning out a very fine mine. At Williams' Fork the copper mines are turning out finely. The Colorado Steam Navigation Company's barge passed La Paz, going down the river, on the 27th of February, with a full load of first class ore from the Planet and Mineral Hill mines, and a large quantity of ore from these and other mines is reported ready to be taken down to the landing as soon as the water in Williams' Fork, which was very high, subsided sufficiently to allow the freight teams and pack trains to commence running again. The Great Central upper mine (Eliza Ledge) had turned out a splendid mine. The foreman reports over two hundred tons of rich ore out ready for smelting, and a very large vein of black oxides had been struck in the shaft. The company's provisions and supplies had reached the mouth of Williams' Fork, eight or ten miles from the mine, and the steam-engine, boiler and smelting works, were expected up from the mouth of the river by the next steamer.

Utah.

A correspondent of the Salt Lake *Vedett*, writing from Rush valley lately, gives the following:—I take pleasure in informing you that extensive lodes of gold bearing quartz, rich in gold, have recently been discovered in this mining district, and it has created an immense excitement in our usual quiet city. The miners here are all overjoyed at the prospects, and those who are most conversant with mining operations seem to be the most sanguine in the matter; they pronounce it richer ore than any they have heretofore seen taken from the mines of Montana, Idaho or Nevada. It is also expected that rich surface diggings can be found in this vicinity, in fact they have already been discovered. Our worthy Recorder has picked up several small pieces of gold from amongst the sand and gravel close to those quartz ledges. Whilst writing this article, parties are hunting for pans suitable to commence the washing or panning process. In order that credit may be accorded to whom it is due, I will here state that two of our "boys in blue," whilst out hunting for government mules, did actually find one of Uncle Sam's huge pocket-books imbeded in the earth, in its natural state. I deem it unnecessary to say anything in this correspondence concerning the extent and richness of our silver mines, which are acknowledged by all competent judges, who have thus far visited them, to be the richest as well as the most spacious silver lodes that have thus far been discovered on the Pacific slope. The facilities for working these mines cannot be excelled anywhere, having an abundance of fuel and water in close proximity to them.

Nova Scotia.

From the official report of the chief commissioner of mines for the year 1865, it appears that the total yield of gold in the province of Nova Scotia for the past year was twenty-five thousand four hundred and

fifty-four ounces, three pennyweights, eight grains—of which there was obtained from quartz crushed, 25,341 ozs. 6 dwt. 18 grs.; from alluvial soil, etc., 112 ozs. 16 dwt. 4 grs. The largest local gross yield was at Waverly, and the smallest, excluding the unproclaimed districts and districts irregularly worked, at Tangier. The largest monthly yield was in June, and the smallest in February. The yield for 1865 exceeds, by one-fourth, the aggregate yield for 1864, and is more than equal to the combined aggregate yield for the years 1863 and 1862. The value of the total yield amounts to over five hundred thousand dollars in gold, being an average of $664 80 for each man employed. The quantity of quartz raised during the year was 25,001¼ tons (of 2000 pounds each), and the number of pounds raised by each man was 234⅔ pounds per day. The yield for 1862 was 7,275 ounces; 1863, 14,001; 1864, 20,022; showing a steady and large increase. The daily yield of gold per man in 1865 was $2 39; in 1864, 94 cents. The daily average of hands employed in the last-named year was 682,583, while in 1865, it was only 500. The average yield of gold per hundred pounds of quartz has increased from 0.790 in 1862, to 1 dwt. 0.902 grains in 1865.

Central America.

A correspondent in the N. Y. *Times*, writing about the Barbacoas Gold Mines, says: The Panama Railroad Company's steam freight boat Parkersburgh, returned from her trip to Tumaco on the 24th of March, having landed there 160 Californians for the Barbacoas gold diggings. About 25 of the 185 she took down returned in her, they either finding themselves short of means to proceed up the river or having become discouraged at the prospect of making money in the mines. The Panama *Star and Herald* sent a special correspondent to Barbacoas, whose first letter is not very encouraging to gold seekers. He says that "only four mines are in active operation. The working of the mines entails a considerable outlay, and can only be successfully carried out under considerable difficulties. The diggings are all in very steep banks and must be worked horizontally, for which purpose the hydraulic process is the only profitable one. All the country round Barbacoas is private property, and although the washing of gold out of the sand of ths shores is open to all, the river is seldom low enough to allow that operation. An experienced miner also has told me that the bed-rock is much below the level of the river, and therefore the water has to be baled out by women, with a good deal of trouble and expense, as there is not fall enough for it to flow out of the sluices. It seems to be perfectly true that the country higher up the river Telembi, is not only richer in gold, but that there is a large back land of fertile and healthy mountains; but as yet I have not been able to gather any information from the natives which I would implicitly believe; and the Americans who had started from Barbacoas for the head of the river, had not yet returned." The correspondent says that a large portion of the miners who were the first to start for Barbacoas are now lying there sick; that there are no accommodations of any kind for travellers at Tumaco; that the possibilities of going to work at Barbacoas immediately on arriving there, on individual account, and doing well, are very few; that it costs a good deal to open large mines; and until these are opened, there will be little chance for miners earning day-wages. . . . A Mr. O'Connell, who had been some months at the mines, returned to Panama in the Parkersburgh, and is going to the United States to purchase machinery and return there. He had with him about $20,000 in gold. . . . Consul Little, who went to Barbacoas in the Parkersburgh, returned in her, and published a note in the *Star* and *Herald*, which undoubtedly gives very judicious advice, as follows:

"CONSULATE OF THE UNITED STATES,
PANAMA, March 28, 1866.

GENTLEMEN: I fully approve the views expressed in your paper of the 27th inst., in regard to the emigration of poor miners to Barbacoas. Great suffering already exists at the mines, and my advice to all miners in California and Nevada is: 'Do not come unless you have at least $500 in your pockets above the expense of getting to the mines, as a capital to start with, or as means of returning if sick or dissatisfied.' I am, very respectfully, your obedient servant, W. B. LITTLE, U. S. Consul."

. . . Last evening, at 5 o'clock, the British steamer Favorita arrived from Tumaco, bringing back seventy disappointed miners, many of them destitute. They report that much sickness and distress exists at Barbacoas and Tumaco, and that nearly all of the 700 Californians that have gone there are anxious to return. Ninety more arrived in the Golden Age from San Francisco, but it is presumed that in view of the bad news not many of them will go to Tumaco.

Austria.

It is a fact not generally known, that an extensive industry analogous to our oil-boring, exists in the heart of the European continent, and it will be a source of comfort to those who lament over the irregular and blundering management of the business among us, to know that the processes of the Old World are, if possible, more crude and clumsy than our own. Mining Engineer Jicinsky describes the naphtha and earth-wax production of Austrian Galicia thus: Whoever now visits Borislav sees before him a second California—a busy activity, of which no idea can be obtained except by personal observation. Windlass stands close to windlass, and workman to workman, while among them peep the eager buyers and sellers of the fresh naphtha and wax, with a shouting and confusion like that of a great Fair. From various sources we learn that in a very small district there are no less than five thousand to six thousand wells now in operation, and as many more already caved in. They are twenty five to one hundred and seventy feet deep, and generally over twelve feet apart. Sometimes they are so close together that the men at the windlass interfere with each other, and so irregularly are the shafts sunk that it is not uncommon for two neighboring ones to run together in depth. These wells are not bored like those of Venango county, Pennsylvania, but dug, like the surface wells of Inniskillen, Canada West. The escape of noxious and inflammable gases is so great as to prevent the sinking of deeper shafts. In these wells the oil is allowed to collect, and then taken out, together with much water, by means of buckets. The productiveness of the wells varies greatly. Some furnish but one to four buckets of oil, holding seven gallons each per week; others, more favorably situated yield from forty to one hundred buckets. A hundred-bucket well of Galicia would be equivalent to a two-barrel well on Oil creek; but it must be remembered that naphtha is worth more than petroleum. The productiveness varies, also, as to time. Some of the wells have already given oil uninterruptedly for three or four years; others have become exhausted in six months or a year. About one hundred and fifty wells are now producing wax—in the aggregate about two tons per week—of which some furnish but the smallest traces, and others three to twenty hundred weight daily. The present annual production of Borislav is ninety thousand hundred weight of naphtha, and forty-five thousand of wax. This mineral wax, known to mineralogists as ozokerite, is a peculiar compound of carbon and hydrogen, containing 85.7 per cent. of the former, and 14.3 of the latter; by direct light greenish, by reflected light yellowish and reddish in color, very soft, melting easily to a clear oil, which hardens again on cooling; combustible at a high temperature, with a clear flame and almost without residuum. It is extensively used for the manufacture of candles. The geological formation in which these products occur is tertiary, being the Eocene sandstones of the Carpathian range. It will be seen at once that this is much more recent than the petroleum deposits of Canada, or the United States east of the Rocky mountains. The shiftlessness of the naphtha miners, is explained by the fact that they are Galician peasants, without skill or experience, and that this branch of mining is not regulated by law, as are the older and longer known. Steps are now taking for the introduction of proper system into this field, and the productiveness of Galicia will doubtless increase under the impulse of added skill and capital.

Oil Summary.

Pennsylvania.

The Pittsburgh *Commercial* states that the Humboldt refinery, near Plummer, Venango county, took fire on Thursday from the bursting of the stills, and was totally consumed. One thousand barrels of oil were destroyed. This is a mistake; the Humboldt refinery near Plummer was in excellent working order yesterday, and doing its usual amount of business. . . . The Oil City *Register* of the 5th says: Business during the present week has improved. Both river and creek are in good boating order. Prices have advanced. We give, as the ruling rates, $4 and $4.50 at the wells, and $5 and $5.50 at this point. Large amount of oil at mouth of creek. The steamers are making regular trips. Weather delightful. Freights to Pittsburgh 50 cents per barrel. River falling slowly. Market closes buoyant. . . . The Oil City and Pithole Railroad is now open, and trains are running through from Oil City to Pithole. . . . The Reno *Times* of the 4th says: Two fires have devastated the oil field during the week, one of them undoubtedly the largest and most disastrous which has ever occurred in the Pennsylvania oil region. More than thirty thousand barrels of oil have thus been destroyed, which, aided by other important circumstances, as well as a rise abroad, has had an important effect on the market. The price of oil has suddenly increased more than one dollar per barrel above last week's quotations, and is very firm. Holders on Bennehoff and Stevenson Farm are waiting for five dollars per barrel, while buyers are offering four. On the Central Petroleum Company's Farm and the Egbert Farm there is none for sale. Boating both on Oil Creek and hence to Pittsburgh is lively, and the streams are at a good height for the business. Prices are as follows:

At Reno on Platform	$5 50@5 75
Oil City	5 25@5 50
Tarr, Blood and Story Farms	4 50@4 75
Bennehoff Run, (at wells)	4 00@4 25
On Pithole, (at wells)	4 00@4 25
Petroleum Centre	4 50@4 75
Rouseville and Cherry Run	4 75@5 00
Boating from Petroleum Centre to Reno	90@1 00
" " Tarr, Blood and Story Farms	@ 85
" " Petroleum Centre to Shaffer	@ 65
" " Reno to Pittsburgh	@ 65

Inquiry has been made as to the cost of pumping the Reno wells. A neighboring paper recently gave the average daily cost of pumping a well, through the oil regions, at $24.73. As will be seen by the estimate below—verified by the financial managers of these wells—the actually daily cost of working the Reno wells is but $10.50 per day, as follows:

Repairs and Oil	$ 50
Engineers	6 00
Fuel (wood)	4 00
Total	$10 00

Even this estimate is too high, for the wells being worked in pairs, one engineer attends to two wells, making the cost to each well but $3.00. As will be seen by advertisement elsewhere, coal is offered for sale at this point for 20 cents per bushel, or at the rate of $5.60 per ton. The price of oil is always higher at Reno than at any other point—except those which produce the heavy lubricating oils—and Reno oil is now worth $6.00 per barrel. . . . Three years ago the value of oil to the producer was $2 per barrel, the commercial value $8. The present yield—8000 barrels—is worth to the producer $5 per barrel, making $40,000. Annual product five years ago was 360,000 barrels, worth $720,000; annual product at present is 2,400,000 barrels, worth $12,000,000; value as an article of commerce five years ago, $2,800,000; value at present, $48,000,000. . . . It is is expected that all taxes on petroleum, both crude and refined, will be soon removed, and this will give value to many enterprises actually abandoned in consequence of a stupid legislation.

California.

A correspondent writing from Santa Barbara Co. to the *Alta* says: The Hayward Petroleum Company has been organized something over three months, and shipped one thousand barrels of oil, much of which has been over thirty, Beaume's scale, and could have shipped, up to the present time, more than double the quantity of green oil. The Stanford oil springs are energetically worked, and are producing a large amount of oil. There are some smaller works that would have produced hundreds of barrels if there were a home market for the product, and they could weekly realize a small sum per barrel. The trouble of procuring barrels, the great expenses of transportation, the delay and difficulty of shipments, the general heavy character of the surface oils, the absence of a large demand for lubricating purposes, and the large expense of refining in the city, where it at present must be sent, are, combined, hindrances to a large development. What is at present wanted in this country are local refineries, in some central and accessible spots, where the crude material can be cheaply and abundantly supplied. There is, probably, no enterprise East or West that offers so substantial a profit as the erection of a refinery, either on the coast, or in some central portion of the Santa Clara valley. Some ridicule has been made of the proposed plan of Professor Silliman to conduct the oil in pipes from its outpourings to the ocean beach. It has afforded merriment and food for "official badinage;" but the Hayward Petroleum Company—"to all whom it may concern" be it known—have been for months conducting the oil from the mountain sides in some nine thousand feet of iron pipe, propelled therein by nature's great law, gravitation. In truth, this iron-piping is the grandest highway of modern times, and has the great advantage over all other highways, or modes of transportation, that it carries itself, works its own passage, and greases its own wheels. I know of no better or cheaper conveyance. The Humboldt *Journal*, of February 22d, says: "The Monitor takes with her on her present trip seventeen barrels of oil from the Union Mattole well." The same journal has the following mining items: "There is still but little news of great interest from the oil region, and we do not look for any astonishing success in oil discoveries for months to come—not until sufficient depths in the various wells being sunk are reached to warrant an expectancy of a steady flow of petroleum. We have the following reports from the wells mentioned: Oil Creek Company—Well down 100 feet; prospect good. Fortuna Well—Down 356 feet. In this well the prospect is very flattering, and stockholders are in high spirits. They look for big quantities of oil to be struck at any moment. Buckeye—Well down 160 feet. It is in good condition, and those interested in it have high hopes of success. Sutter & Allen—Well down over 200 feet. They have a fine show of il in this well, and the quantity increases as its dept is increased. Jeffrey and Irwin Davis (Mattole) Wells are progressing satisfactorily, and both have the best reasons upon which to base their hopes of striking oil at an early day." . . . . The Temple Spring Petroleum Company has filed its certificate of incorporation for the purpose of boring for oils in Los Angelos county. Capital stock $240,000, in 240 shares. Trustees—C. L. Low, A. C. Nichols, I. P. Rankin, N. Page, and F De Long.

Utah.

The Salt Lake *Vedette* gives the following account

of petroleum on the Plains: Not far from Fort Caspar, or Platte Bridge, on the old Oregon and California route, and about 130 miles west of Fort Laramie, there are situate some coal-oil springs, which run fifteen hundred gallons a day. They flow out from the foot of a steep mountain, in which is a coal bed or stratum four feet wide. The soil around is sandy, and from a crevice in the sandstone springs the petroleum stream. This location is in the Black Hills, six miles from the Red Buttes. The oil was assayed in San Francisco, and yielded seventy-two per cent. of the pure stuff These springs were discovered last summer by Mr. J. I. Brannan, and are owned by him and a few of his friends. We learn that Mr. Brannan has an offer from a company in Montreal to sell these springs. The purchasers will erect a refinery on the grounds so as to supply these Territories with light this coming summer or fall.

Canada.

Petroleum has become so important an article of commerce that any information regarding its deposit in large quantities at places convenient for its shipment to this country, or, indeed, to Europe generally, is at the present time most valuable. We learn by the last mail that it is now a settled fact that there is an almost unbounded supply in the district of Gaspe. As there is a safe and commodious harbor at Caspe, the oil obtained there may be shipped to Europe at the same freight as from Philadelphia, New York or Quebec, and as it will be free of the expense of inland carriage paid on oils shipped from Pennsylvania or Upper Canada, a distance in either case of 600 or 700 miles, the Gaspe oil can be delivered in our English markets at considerably reduced rates upon present prices. A company formed at Boston, having obtained some of the lands in the Gaspe district which gave indications of oil deposits, operations on a large scale were at once commenced, and we are informed that the results have been most satisfactory. The agent writes that "at 444 feet deep we struck a fine show of oil, which we thought of testing, but as it grew better and better we kept on drilling, and at 500 feet we found the rock to be the same as that known as the Pennsylvania oil rock. We continued boring, and at 510 feet we found a strata of very hard rock, which gives us every hope of a good well."

Coal Summary.

The Pottsville *Miner's Journal* of the 7th says:

The quantity sent by Railroad this week is 63, 511,-19—by Canal, 38,726 10—for the week, 102'238 09 tons against 93,402 tons for the corresponding week last year. The shipments are heavy and prices are a little firmer than they were last week. They were stiffened up a little by the advance on prices at the last New York auction sale. Second quality of Coal is dull and prices low. There were turnouts at some of the colleries to resist a reduction of wages to meet the reduction in the price of Coal. At several they have gone to work again at the reduced rates. We learned yesterday that there was some falling off in the supply sent forward. The increase so far this year reaches 369,931 tons. The low prices of Coal is increasing the consumption very materially. The auction sale of Scranton Coal was quite spirited, and a slight advance was obtained on all sizes. Freight from Port Richmond to New York has receded to $1 60. This will no doubt cause a reduction on the Schuylkill Navigation. The present rates by Canal are $2 75 from the Coal region, making 15 cents in favor of the Railroad. . . On Monday, April 2, the following freight tariff on coal transported over the Lehigh Valley railroad from Mauch Chunk (in lots less than fifty tons) went into effect:

To		To	
Leighton	46	Catasauqua	$1 15
Parryville	50	Allentown	1 26
Lehigh Gap	62	Bethlehem	1 47
Slatington	72	Fremansburg	1 54
Rockdale	78	Lime Ridge	1 62
Laury's	89	Glendon	1 69
White Hall	$1 00	Easton	1 84
Coplay	1 05	Phillipsburg, N. J.	1 91
Hockendauqua	1 10	Philadelphia	2 20

Russia.

Late reports show that huge coal-fields exist in the Ural district of Russia. There are also immense coal-trains in the Moscow district, covering an area of one hundred and twenty thousand square miles, and in the Don. Besides these, coal has been discovered in the Caucasus, Crimea, Simbirsk, Ekstarinofski, and the steppes of the Kherson, in the government of Kief, and in Poland.

Serious Charge Against a Prominent San Francisco Stock Broker.

Theodore C. Sanborn, a prominent member of the San Francisco Stock and Exchange Board, was recently arrested, charged by Thomas J. Higgins with having, on the 12th of February, obtained money under false pretences. The preliminary examination in the Police court elicited the following testimony, reported by the *Bulletin*:

Thomas J. Higgins, the complainant, testified that he sold Sanborn one foot of Yellow Jacket for $385, taking his check for the amount. Upon presenting the check at the bank it was dishonored, the Paying Teller saying that there were no funds in the bank standing in the name of T. C. Sanborn. William Burling testified that he had received a draft on Donahue, Kelly & Co., for $1,700, in payment for four feet of Yellow Jacket stock. The check was presented on the day on which it was drawn, at half-past two o'clock, and returned a little after three o'clock, with a notification that there were no funds to meet it. Thomas Hill testified that he sold five shares of Chollar stock to Sanborn, taking his check on the Bank of California for $1,370. The check was presented and dishonored. Joseph Tilden, of Breed & Tilden, brokers, testified that they sold Sanborn ten shares of Imperial, and one share of Yellow Jacket, receiving in payment a check on the Bank of California, for $1,555. The check was deposited in the Bank of John Sime & Co., dishonored, and has not yet been paid. Mark L. McDonald testified that he sold Sanborn one foot of Hale & Norcross, one share of Savage, and two feet of Yellow Jacket, taking a check on the Bank of California for $2,625, which was dishonored upon presentation, and has not yet been paid. Mr. Duncan sold five shares of Imperial for $380, and took Sanborn's check for the amount: It was presented and dishonored. E. F. Child testified that he sold Sanborn one foot of Yellow Jacket, and took a check for the money, and, upon presentation, it was dishonored. E. T. Pease, for the defense, testified that Sanborn had been doing from $5,000 to $20,000 worth of business a day. He supposed Sanborn to be rather lame lately, but he had been prompt in his payments until this affair. William H. Silverthorn, Deputy Sheriff, testified that on the 12th of February, he levied upon a canvas bag containing $5,772 50, under an attachment issued out of the Twelfth District Court, to satisfy a judgment against Sanborn in favor of Charles Hosmer, for $15,000. That he waited on Merchant street until he received a signal from Jackson McKenty, and then seized the bag and contents. Sanborn became much excited when his money was attached, and said it was a d—d shame to break him up for $5,000; he wouldn't have cared if it had been $100,000. David Young, a former partner of Sanborn's, testified that during the time of their partnership their business transactions reached from $250,000 to $750,000 per month. They were in the habit of drawing checks and then depositing money to meet them. On the day of the failure, Sanborn had just ordered the porter to take the money to the bank to meet outstanding checks, when it was attached. When the Sheriff attached the money, Sanborn said it was a d—d shame, and a robbery, that the money did not belong to him, but to parties who held checks against it. Charles Hosmer testified that Sanborn sold him 30 shares of Hale and Norcross at $280 per foot, deliverable at the sellers option in forty-five days. At maturity Sanborn had not the stock, and gave his note for $15,000, being the difference in the market value of the stock, and the price I had purchased for. I commenced suit for recovery on the note, and the Sheriff levied upon certain money in the hands of Sanborn, which has since been paid to me. The bargain for the stock was made at a supper at the restaurant known as "The Poodle Dog." Mr. McKenty gauranteed the delivery of the stock. I understood that he was worth from $20,000 to $30,000, and readily took his guarantee. I do not believe that I would have done so if I had known that the stock was going to rise to so high a figure. After the money was attached, I induced Mr. Sanborn to confess judgment in my favor. I told him that if he would do so, he would not lose anything by it. I meant by that, if he ever wanted to borrow a few dollars I would loan it to him. The prosecution here introduced R. J. Vandewater, who testified that about the 12th of February, he saw Mr. Sanborn in his (Vandewater's) office. He said he was very hard up, and was afraid that he would fail. I told him to talk to my clerk, and see what could be done about his affair with me. My clerk told me that if I wanted to be on the safe side, I had better attach his property. I understood he had a contract for twelve shares of Hale & Norcross, to deliver during the coming week, and that unless he could get some money from some place, he would have to fail. He owed me about $8,000. Should have attached him on Monday had not others been ahead of me. Cutler McAllister, for the defense, took the ground that no criminal prosecution could be maintained, as the intent to defraud had not been shown. He contended that the drawing of a check on a bank where the drawer knew that he had no funds on deposit was not a crime, unless it were shown that the drawer never intended to make good the check, and that it was given for the purpose of cheating and defrauding the party to whom it was given. He argued that it was an every day transaction, and that Sanborn honestly gave the check, expecting to meet it by depositing the $5,000 which was subsequently seized under attachment, and that no fraud had been committed. The injured parties had recourse through the civil courts, provided Sanborn was solvent, but the criminal courts, under the circumstances, afforded them no redress, inasmuch as the testimony did not substantiate the charge made. It was the simple overdrawing of a bank account, which every one who has kept an account of the kind has frequently done, and which was an every day occurrence among business men, and the transaction had none of the elements of fraud. Alexander Campbell closed for the prosecution, and reviewed the testimony at great length, contending that the circumstances surrounding the transaction showed it to have been fraudulent, and argued that Sanborn, McKenty and others were in collusion to bring about a certain end, and that was to secure to Hosmer the money which Sanborn owed him. Sanborn opened an account with the Bank of California two days before the transaction. On the Saturday before his failure he confessed to Vandewater that he must fail. At the time of drawing these checks he was in debt $23,000—$15,000 to Hosmer, and $8,000 to Vandewater. He drew checks this day to the amount of $8,400, and even if his bag of $5,000 had not been interfered with, there would still have been a deficit of $3,000 at the bank. How could he make it up? He confessed his insolvency, and utter inability to meet the demands against him. He had no reason to hope for credit from the bank to whom he was a stranger. His friends would not assist him further. As to the Hosmer contract—when it came due Sanborn was unable to meet it, and gave his note for $15,000, with the understanding that he should have time to pay it up as he was able. By giving the note, McKenty, the guarantor, was relieved from all responsibility. Six days after the note was given, the attachment was issued by Hosmer, and without any demand having been made on Sanborn for any portion of the debt, and after the attachment Sanborn confessed judgment in Hosmer's favor. It would naturally be supposed that Sanborn would be indignant at a man who had broken up his business, and who had seized money which he (Sanborn) told the Sheriff belonged to other parties, and against which he had drawn checks at the bank. But, instead, he goes to the man that has ruined him and places it in his power to retain the whole of the money, which Sanborn had said belonged to others, thereby preventing them from intervening and receiving their proportion of the assets. Jackson McKenty, the bosom friend of Sanborn, who had guaranteed his contract with Hosmer, and who was relieved from responsibility by Sanborn giving his own obligation for the amount which McKenty could otherwise have been held responsible, acts as the Sheriff's informant, and gives the signal for the officer to seize the money. Another singular phase of the transaction was that Sanborn drew the money on the checks which he received on that day. It was the custom of business men to deposit the checks at the bank to their credit, but Sanborn had first drawn the money on them, then taken it to his office, and was going to deposit it again, when it was attached. It looked very much as though he was turning everything into coin for the convenience of the attaching party. Counsel contended that the circumstances connected with the affair showed it to be fraudulent from beginning to end, and that the simple overdrawing of his bank account was a matter of no comparative moment. Judge Rix, having heard the arguments *pro* and *con*, held Sanborn to answer before the County Court, fixing his bail at $1,500.

The Vermillion Gold Fields of Minnesota.

We have received within the past week, from various places, letters asking information as to the yield of the Vermillion Gold fields. In answer to these inquiries we can do nothing better than republish the reports of the various assays of quartz in that region, made last fall.

The first assay was made by John Wallace, of New York, and showed a yield of gold and silver, amounting to $23 85, to the ton of 2,000 pounds.

The assay of Professor Eckfeldt, at the Philadelphia Mint, yielded of gold $25 63, and of silver $4 42; total $30 05.

Another lot of specimens assayed by Professor Eckfeldt, at the Mint, showed a yield of gold $21 70, silver $1; total $22 70.

Assays by Mr. Eames, of St. Paul, yielded respectively $28 35 and $32 35 each, to the ton.

It is only proper that we should mention the fact that we have heard of the assay of specimens from Vermillion, the yield of bullion from which was very much larger than above stated—some as high as $500.

It must be borne in mind that as yet the explorations have been very meagre, but all the information we have, leads to the belief that there is plenty of gold there. As early as 1856, a gentleman of experience in California gold mining, told us that he had found it there, and intended thoroughly exploring the country the following summer; unfortunately he was murdered by the Indians shortly afterwards while on his way to the East.

A late report published by Professor Whittlesey, who explored the St. Louis and Vermillion Rivers, in 1848, is favorable to the existence of the precious metals in that region. He says the geological features are such as to warrant the belief that both gold and silver may be found there.—*Superior Gazette.*

Mineral and other On-dits.

☞ **A patent has been obtained on an invention** for grinding metallic ores and for carrying on the process of amalgamating, by which the precious metals are separated therefrom. It consists in a rotating screw operating in connection with a case or cylinder surrounding the said screw, and placed within the ordinary amalgamating pan, in such a way that when the screw is rotated in one direction it will grind or mash the ore or pulp in contact with the quicksilver placed in the bottom of the said pan, and when revolved in an opposite direction will cause a continuous agitation or circulation within the pan of the ore or pulp and the quicksilver intermixed therewith, by which means the thorough grinding of the ore and the amalgamation of the metals contained therein is effectually insured. It also consists in a novel arrangement with reference to the case or cylinder just mentioned, and to the amalgamating pan, of partitions with sloping sides, which insure the proper passage of the ore or pulp from the amalgamating pan into the said case.

☞ **Crude petroleum, also coal oil, is first distilled,** then treated with sulphuric acid and subsequently with caustic alkali, before a second distillation. John Cassell, of London, C. W., has secured a patent for the use of a mixture of the bichromate of potash and caustic soda, mixed with the oil in the second distillation. The quantity used is one part bichromate of potash and two parts of caustic soda at 36 deg., and they are then distilled. Potash may be substituted for soda, and, instead of bichromate of potash and caustic alkalies, any of the salts of chromium, or in combination with alkalies, caustic or otherwise, may be used, although it is preferred to use them as stated above. If the oil, like that of some shades, is difficult of purification, it may again be treated with sulphuric acid and caustic soda, and distilled a third time.

☞ **Considerable interest is attached to the recent** discovery of rich deposits of auriferous pyrites and gold-bearing quartz above Washington, on the Potomac, near the Great Falls. A stock company has been organized, with a capital of $375,000. A powerful engine for quartz-crushing and sublimating the ore is on the ground, the erection of a quartz-mill completed, and Cornish miners, under the direction of an engineer, are penetrating the rich ledges of the property. The mint assay of the surface rock yields $116 per ton of 2000 pounds. The sulphurets are in excess of that.

☞ **The Secretary of the Interior has prepared a** circular, addressed to all the mining companies of the gold and silver-mining regions of the West, requesting them to present specimens from their mines of all the various ores. Within two years, it is the opinion of the Secretary, we will thus have at the Patent Office the richest and most varied and instructive cabinet of precious ores that exists anywhere in the world. This measure is introductory to the establishment of a Bureau of Mining and Minerals, which the Western mining interests require.

☞ **One of the two experts, professors of chem**istry, to whom the Secretary of the Treasury referred the investigation as to the combustible or non-combustible quality of petroleum, has responded. His opinion is unqualifiedly that that commodity is combustible within the meaning of the law, and, consequently special license for transporting it must be taken out before it can be carried on passenger vessels. The other expert has not yet responded.

☞ **Governor McTarish, of British America, was** in St. Paul a few days ago, *en route* to England. He reports that large nuggets of gold had been found near Fort Garry, on the lands of the Hudson Bay Company. The discovery was kept secret for some time, but finally became known, and there was much excitement in consequence.

☞ **It appears by the census statistics of 1860,** that the mining products of the country amounted to $106,984,469, and the manufacturing interests immediately connected with the mining to $505,398,000, or one-third of the product of the whole manufacturing interests of the country, which was $1,885,861,000

Special Scientific Brevities.

☞ **A German by the name of Sturz has just sub**mitted a proposition to the Secretary of the Treasury, in which he designs that the Secretary shall issue Land Bonds, or United States scrip, representing a certain number of acres of land; the bonds to be sold in Germany among the lower classes who are so eager to own land. Mr. Sturz is of the opinion that a large sale of Government securities could be effected in this way, and largely augment immigration to this country and the settlement of the uncultivated lands belonging to the United States. Secretary McCulloch holds the matter under advisement.

☞ **Two French Metallurgists, one of them the** editor of the *France Medicale*, have announced that they have discovered a method for transmuting silver, copper and mercury into gold, all these, they say, being one and the same metal in different dynamic states. This idea is quite in accordance with that of the old alchemical writers on the subject; and the possibility of transmuting metals has been admitted by Sir H. Davy, Dr. Faraday, and other eminent modern chemists. Whether in this case, it has really been done, however, we confess to have our doubts.

☞ **Science has discovered, through the skill of a** French chemist, a good substitute for the new metal magnesium, which will produce a light nearly as brilliant, at a very much lower cost. The new light is produced by the combustion of a mixture of twenty-four parts of well-dried pulverized nitrate of potash with seven parts of flour of sulphur and six of the red sulphide of arsenic, and the mixture can be sold at about 3d. a pound.

☞ **An interesting experiment has been tried at** the Dijon (France) railway terminus with a system of electric bells applied to a railway train of passenger carriages. It completely succeeded. A communication between each of the carriages and the compartment occupied by the head conductor of the train, was instantly effected by merely pressing a button attached to one of the partitions of the carriage.

☞ **A gigantic aquarium is to be among the w**onders of the Universal Exhibition at Paris. The front alone is to measure 100 feet; every sort of fish is to be collected therein for the amusement of the public, and even sharks, cod, and porpoises are to exhibit their peculiar habits and customs in grottoes and caves, which are to be excavated in the floor of the building and filled with sea water.

☞ **The excavations of Selinunt, the former Phœ**nician city of Solus, near Palermo, have been recommenced under the direction of Signor Cavallari. Three streets have been laid open, and a number of glass vessels partly ornamented and inscribed with Greek legends have been found and placed in the Museum of Palermo.

☞ **Valentine found that the whole quantity lost** by exhalation from the cutaneous and respiratory surfaces of a healthy man, who consumed daily 40,000 grains of food and drink, to be 19,000 grains, or three and one-half pounds.

☞ **Not less than 800 tons of lead were recently** obtained in one year, the result of the dust which accumulated within that time in the long flues of a smelting furnace in the north of England.

Patent Claims.

INTERESTING TO MINERS, MILLMEN, METALLURGISTS, OIL-MEN AND OTHERS.

The following claims have recently been issued from the United States Patent Office:

53,552.—Quartz Crusher.—S. F. Ambler, Tuolumne Co., Cal.:

I claim the strip or flange, e, attached to the mortar box, A, of a float quartz battery, substantially as shown, for the purposes set forth.

53,564.—Drill Cable Meters.—L. C. Bristol, Victor, N. Y.:

I claim in combination with the drill cable or its equivalent, of well boring apparatus, a meter having a traction wheel or pulley, substantially as shown, for the purposes herein set forth.

53,569.—Method of Extracting Gold and Silver from Ores.—Charles F. Carpsuter, Louisville, Ky.:

I claim the manner of using atmospheric air for the purpose of facilitating the extraction of gold and silver from ores, causing a separation between gold or silver and the ores of baser metals, and consists in introducing the said atmospheric air between the flame of a reverberating furnace and the ores containing gold or silver which are spread upon the hearth of the furnace.

53,586.—Rock Drill.—Julius C. Dickey, New York City:

I claim the central drill bit, B, made to answer the purpose of a reamer, in combination with the drill bits, A and C, substantially as set forth.

53,590.—Process for Amalgamating Gold, Etc.—F. N. Du Bois, Black Hawk, Colorado:

I claim the use of an amalgam of gold and mercury, substantially of such consistency as to render it adaptable for the purpose set forth.

53,596.—Steam Engine.—Isaac Ferris, Cincinnati, Ohio:

I claim, First, The open-ended cylinders, A A' B B' C C', and pistons, D D' E E', arranged, connected and operating substantially in the manner, and for the purpose set forth.

Second, In this connection the arrangement of the parts, N R R' and S S', for operating the valves, P Q, substantially as described.

53,599.—Rock Drill.—George P. Ganster, New York City:

First, I claim the combination and arrangement of the flyer, C, ratchet wheel, D, pawl, o, rock shaft, Q, rod, T, and a crank, S, on the axle, S', of the roller, S'', or its equivalent, substantially as and for the purpose herein specified.

Second, In combination with an unyielding roller, H, of the construction, substantially as herein described. I claim the elastic grooved roller, J, constructed and operating in the manner and for the purposes set forth.

53,602.—Rock Drill.—Lucius M. Gilmore, Janesville, Wis.:

I claim the drill or built tool, E, when constructed and arranged substantially as and for the purpose set forth.

53,603.—Grinding Mill.—Solomon Godfrey, Peoria, Ill.:

I claim the combination of the openings, D and E, and the flange, C, with the rim, A, and the runner, substantially in the manner and for the purpose described.

53,613.—Steam Engine.—William M. Henderson, Philadelphia, Pa.:

First, I claim the union of the valve chest with the steam cylinder in such manner that the roof of the main steam ports is formed by the bottom of the valve chest, in the manner and for the purposes represented.

Second, The connection of two piston heads in a cylindrical valve chest, by a spindle or its equivalent, said heads being united in motion, and carrying between them a sliding valve, to which is imparted a stroke less than that of the driving heads, substantially for the purpose specified.

Third, The described arrangement of the grooves, V V', and channels, I I, in the piston heads with the passages, X X', in the valve seat, when operating as herein set forth.

Fourth, The arrangement of the air holes, K K', through the piston heads operated by the action of the valve, in the manner and for the purposes herein described.

53,617.—Steam Generator.—Birdsill Holly, Lockport, N. Y.:

I claim the combination and arrangement of the vertically pendent tubes, C C, with the furnace, B, flues, d d, and water jacket, a, substantially in the manner and for the purposes described.

53,630.—Piston for Deep Well Pumps.—Elisha Y. Kneeland, Buffalo, N. Y.:

First, I claim a piston valve constructed in sections, B B' B2, with intermediate leather crown packing, f, and guiding rod, h, for the purposes and substantially as described.

Second, The arrangement of two, three or more leather packing cups, A, with corresponding compressing or holding rings, E, in combination with the piston, so that when the two parts of the piston are screwed together, the rings will be successively pressed upon the flanges of the packing cups and held in place for the purposes and substantially as described.

53,658.—Apparatus for Refining Iron.—John W. Nystrom, Philadelphia, Pa.:

First, I claim the herein described method of an apparatus for refining metals so that the oxidizing blast shall be admitted into the converting furnace under the molten mass, at elevations with respect to the surface of the metal, higher, as the work of refining progresses, as set forth.

Second, In a converting furnace constructed and operating as herein described, I claim forming the tuyeres of an oblong or rectangular sectional area at the point where they enter the furnace, substantially as and for the purposes set forth.

Third, In a converting furnace constructed and operating as herein described, I claim forming the tuyeres of a curved form, substantially as and for the purposes herein set forth.

Fourth, The combination with the converting furnace constructed and operating as herein described, of cranks and friction wheels, substantially as and for the purposes specified.

Fifth, The employment in connection with a converting furnace, constructed and operating substantially as herein described, of movable ingot molds, so as to allow of their being brought under the furnace, in the manner and for the purposes set forth.

Sixth, Forming the ingot molds of Z-shaped pieces, substantially as and for the purposes specified.

Seventh, Clamping the molds together successively, substantially as and for the purposes herein explained.

Eighth, The lining of the inside of the converting vessel and also of the ingot molds, with a composition of silicate of oxide of iron and fire clay or plumbago, as described.

53,656.—Method of Deodorizing Petroleum.—Robert Newall, Marietta, Ohio:

I claim deodorizing petroleum, and other hydro carbons by treating and washing them with a solution of lye containing chloride of lime, soda ash and common lime, or their several equivalents, in the proportions above stated, substantially as above described.

53,695.—Process of Generating Gases to be Used for Motive Power.—Daniel E. Somes, Washington, D. C.:

First, I claim the apparatus for generating steam or gas to be used as a motive power, substantially as described.

Second, Combining and using the ingredients herein described, substantially as and for the purpose set forth.

53,718.—Apparatus for Separating Ores.—James D. Whelpley and Jacob J. Storer, Boston, Mass.:

First, We claim the secondary hopper, in combination with the main hopper, and opening into it and into the open air by valves to be employed alternately, substantially as described.

Second, The door, c, and its rod, g, in combination with partition, b, substantially as and for the purpose described.

Third, The valves, e e' e'', constructed respectively with their openings, k, of the same size and shape as the open area of the bottom of the cavity to be closed, in combination with the bottom of the hopper and the dust-tight felt packing, substantially as described.

53,731.—Rotary Steam Engine.—John Collicott (assignor to self and Otis Marshall), Boston, Mass.:

First, I claim the pistons, D D, when formed in one piece with or immovably fixed to the rotary cylinder, and provided with packing strips acted on by the pressure of the steam, substantially as and for the purposes herein set forth.

Second, I claim the steam chest with its rotating balance valve, in combination with the steam ports and channels of a rotary steam or air engine, when arranged so that the steam shall be allowed to impinge directly upon the pistons in the center of their lengths, and at right angles, or nearly so, with their surfaces.

Third, I claim the hinged valves extending from end to end of the cylinder, when formed at their ends, to pack against the shoulder, c', on the cylinder heads by the pressure of the steam, as described.

53,742.—Process for Desulphurizing Ores.—Melchor B. Mason, New York City, assignor to United States Mining and Ore Desulphurizing Company:

I claim the combination of lime, nitrate of soda and other equivalent alkaline substance with pulverized or disintegrated ore in a raw condition, preparatory to the calcination thereof, all substantially in the manner and for the purpose herein set forth.

53,755.—Rotary Engine.—Robert D. Wright (assignor to himself and L. B. Holland), St. Louis, Mo. Antedated March 21, 1866:

I claim the employment of the plunge, b, in combination with the rotary piston, e f, all being constructed and arranged to operate substantially as herein described and represented for the purposes set forth.

53,761.—Steam Generator.—Peter C. Moller, Leipsic, Saxony, assignor to Johann Tobias Rominger, Dresden, Saxony:

I claim the combination of the cross-shaped blocks, L, water passages, K, elbows, M, jackets, O, tank, F, and coil, G, constructed and arranged relatively to each other in the manner and for the purposes herein represented and described.

RE-ISSUE.

2,219.—Mode of Lining Pipes with Tin.—W. Anthony Shaw, New York City. Patented March 10, 1863:

First, I claim forming a double metallic pipe or tube out of any two of the ductile metals or their alloys by pressing them together through, over, on or in a die, in such manner as to make each of said metals form a tube or pipe, the one inside of the other.

Second, Putting the tinned lead together in a cylinder over said mandrel, and forcing them through a die over said mandrel, so as to press a lining of tin in the pipe, at the time of its formation.

Third, The manufacture of lead pipe with a lining of tin, by forcing an ingot of tin and an ingot of lead, while over a core, out of a cylinder through a die, by hydraulic pressure, as specified.

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[ILLUSTRATED.]

GEORGE FRANCIS DAWSON,
EDITOR.

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THE PACIFIC RAILROAD.

Now that the war is over, and peace has returned once more to cheer and prosper our nation with its manifold blessings, the attention of our people is universally attracted to the recuperation and development of our great national resources. Our Coal, Iron, Oil, Gold, Silver, Cotton, and other great interests, will now engage the attention of our capitalists more than they have ever done before. We now know and appreciate more truly the value of our natural wealth, and the ineffable blessing of peace. Unhealthy, feverish and purely speculative excitement is not to be desired; it is rather an evil, as we all know from the experiences of the past. But sound and normal activity in our metallic interests is very greatly to be desired. From a variety of circumstances we are constrained to believe we will soon see such activity spring up in all the great interests we have named. Uniting the Pacific with the Atlantic States—spanning with its iron bridge the vast and dreary waste which has hitherto separated them—is the Pacific Railroad, which is universally regarded as of national importance. To picture the future when that great work shall be completed, would not be appropriate in this place, every man prefers to draw his own picture, and is sure to be better satisfied with it than with any painted by another's hand. We prefer rather to rest our attention upon the present than the future of the great road. We learn that work is being vigorously driven on the Pacific end of the road, and also on both the Omaha and Topeka branches on this side. Cars are running on the eastern branch as far out as Topeka, and it is expected that by the 1st of June, or July next, the road will be completed to Fort Riley. We extract the following from "Reports of Preliminary Surveys for the Union Pacific Railroad, made under direction of R. M. Shoemaker, Chief-Engineer." From the Report of Mr. Geo. T. Wickes, who had charge of the surveys of the route for this road, from Fort Riley to Denver City by way of Smoky Hill Fork, as compared with the results of surveys by Mr. P. Golay, of the route up the Republican Fork of the Kansas river to near the 100th meridian of longitude, it is unmistakably evident that all the advantages for a favorable and remunerative line for this great national highway are in favor of the route by way of the Smoky Hill and Big Sandy Fork of the Arkansas river to the city of Denver. The Smoky Hill route is 134 miles the shortest, has largely the advantage in grades and directness, has coal of superior quality, more timber, and occupies by far the best geographical position to accommodate the extensive trade of the States of New Mexico and Colorado, as well as the great overland carriage to Salt Lake and the Pacific Ocean. It is also self-evident that the Smoky Hill will in the future command a much greater local traffic than by the Republican and Platte to Denver. Extensive coal fields have been found on this route which demand immediate and careful examination by competent geologists. The table of grades of the line by the Republican as far as surveyed (181 and 53-100 miles), are very favorable, but not more so than the same distance on the Smoky Hill, while from reliable information it is evident that from the point where Mr. Golay terminated his survey, near the 100th meridian, to Denver, the country is much more abrupt, and requires higher grades on this northern line, and not as favorable for constructing roads as the Smoky Hill route. This route also has no coal, less timber—in short, is in every way the least desirable route. The entire length of the line by the Smoky Hill from Fort Riley to Denver City is 466 miles; from Missouri State line 601 and 3-10 miles. On this line there are 108 miles of level grade, and 376 miles of grade less than 40 feet per mile, and no grade need be over 65 feet per mile. The distance from Fort Riley to Denver City by way of Republican and Platte Rivers, is 600 miles. Owing to the lateness of the season no surveys were made west of Denver City; much reliable information, however, has been obtained, and we feel confident that the best route over the mountains to Salt Lake is in the immediate latitude of Denver." There is every reason therefore for believing that in a few years at the most, the Road will be completed to the eastern base of the Rocky Mountains. Colorado will thus be the first of the mining States and Territories that will enjoy the great benefits which its completion will confer. It is impossible to over estimate the beneficent effect which will then be produced upon the mining interests of the Rocky Mountains. Not only Colorado but New Mexico, Arizona, Utah and Montana will alike share in reaping the benefits of the Road. Every article used in mining operations will then be greatly reduced in price, and ores which will not pay at the present time, owing to the high prices prevailing at the mines, will then pay remunerative prices for reduction. There will thus be a great stimulus imparted to the mining business; and it is reasonable to expect that the production of Gold will be more than doubled in the Rocky Mountain States and Territories. In connection with this subject we may say that an effort is now being made to build a railroad between Golden City, Colorado, at the base of the mountains, and Central City, or Black Hawk, in the mines. Should this road be built, it is hoped and expected that it will be incorported in the Pacific Railroad as one of the links of that great National Line.

MONTANA.

Although the youngest Territory of the United States, Montana is one of the most prosperous; and there are many persons who believe that it is the richest of them all. It seems but yesterday since the first pioneers set forth on their journey to prospect and settle that region. Starting, as most of them did, from the Territory of Colorado, they had the benefit of the early experiences of that country to guide them in their new homes. It is well remembered how various and conflicting were the first accounts received from the new mines—how one class of people, who were fortunate, were exuberant in their florid declarations that it was the richest country in the world, and how another class, the unfortunate, gave the most dismal accounts of everything in that region. Then succeeded a dark time, indeed, for the good men of that country. The old struggle between right and wrong had to be fought out on the virgin soil of Montana; and the miner had to lay down his pick and shovel and take up his weapons to restore law and order, and to regulate the desperadoes who had made that new country the scene of their operations. Through all the manifold struggles of frontier life, beset by all manner of difficulties, and surrounded by myriads of hostile Indians, Montana has now safely come, and stands today the proudest Territory of the Union. Our attention has been attracted to this subject more especially by reading lately a brief account of the opening of the Territorial Legislature on the 15th ultimo, and the Message of the Acting Governor. In his Message the Governor states that he addressed letters to the several County Clerks, requesting statistics of inhabitants, resources, etc., but he had only heard from three. Gallatin county had 2,000 inhabitants, yielding last year, of gold, $153,000. Edgerton, 8,000 inhabitants; gold yield, $5,000,000, and Madison had 10,000 inhabitants; gold yield, $700,000. The Governor further says that he had assisted Major Upson in making a treaty with the Blackfeet Indians last November, at Fort Benton, securing to the United States the title to all the country embraced by the main ridge of the Rocky Mountains, the British line to the 104th parallel, the Missouri from Fort Union to the mouth of the Little Prickly Pear, and thence, by a straight line, back to the Great Mountains. A reservation, enclosed by the Teton, Marias, and Milk Rivers, was guarranteed to the Indians concerned. He recommends a memorial to Congress for an appropriation for the improvement of the Missouri at Fort Union, as it would render that river navigable to Muscle Shell two-thirds of the year. He says it is desirable to memorialize Congress to provide generously for the traffic on the Niobara route, which shortens the overland journey to Montana 800 miles. Steps should also be taken to improve the lines of communication with the Columbia. Montana should heartily encourage every enterprise that gives her safe, speedy, and permanent access to the West as well as to the East, and thus become mistress of an unrivalled situation. We look upon Montana as an infant giant in mining, whose strength and vigor, when fully developed, will astonish and surprise its most ardent and enthusiastic friends. It is difficult to arrive at a correct estimate of its gold production since its first settlement. The same difficulty encountered by Governor Meagher on the spot, meets us here. And those who have lived in a mining country in its early days, know how very difficult it is to obtain statistics on the subject. We believe we are safe in stating, however, that the yield of gold from Montana last year, was very large. Governor Meagher accounts for nearly six millions; and there was, doubtless, a very large amount of gold brought East in private hands, of which no account can now be obtained. Quartz mining in Montana is yet only in its infancy, and we may safely say that if mining matters are managed in that Territory on an honest basis—if capital is judiciously used in the development of the quartz lodes which everywhere abound within its limits—and if warning is taken by the miners of Montana

from the disastrous and suicidal policy of other Territories, there is not a doubt but that the future of Montana will prove eminently satisfactory.

NATIONAL MINING CONVENTION.

Some time ago, a call was issued by parties in this city, requesting all those interested in mining matters to meet in convention at the Cooper Union, on Wednesday, the 18th inst. Little attention seems to have been paid to the call, by the parties most interested. The mining States and Territories either gave the matter the cold shoulder, or else met it with an emphatic condemnation. The impression has now become general that the affair will be anything but a "National" Convention; that it will be attended by but few except those immediately interested in engineering the thing through; and that it will prove practically useless. Be that as it may, we intend to have a reporter in attendance upon the deliberations of the body—so that if there is anything developed of a useful or practical nature, anything that will advance the general interests of mining—a full and complete record of the same may be presented to our readers. It is quite possible, that although the affair now comes like Hamlet's ghost,

"In such a questionable shape"—

with everything to repel rather than to attract—with all the disadvantage of unfavorable impressions—we say it is still possible, that it may contain the germ of something good. It *may* be the means of advancing the general mining interest after all. If such should happily be the result, none will rejoice more than we will—none will be more ready to accord to it emphatic praise—none will be more delighted than we will be to communicate the pleasing fact to the people that the National Mining Convention is really a "big thing." Our next issue, therefore, will contain a full account of the proceedings of the affair.

MINERAL LANDS.

Mr. Sherman introduced, a few days ago in the Senate, a bill to regulate the occupation of mineral lands and to extend the right of pre-emption thereto, which was referred to the Committee on Mining. It opens mineral lands to pre-emption in accordance with the law regulating pre-emptions, and with the local customs of miners, so far as not conflicting with United States laws. It allows individuals and associations claiming and occupying a lode of quartz or other rock in places bearing gold, silver, cinnibar, or platinum, to file a plot of the claim and enter it at five dollars per acre, provided there is no controversy or opposing claim, and on the condition that five per cent. of the net product of the mine shall be paid into the Treasury of the United States. If the lands are unsurveyed it shall be lawful after their extension thereto to adjust the extension limits upon the premises according to the lines of the survey, on such terms as to the rights of adjacent claimants as the Commission of the Land Office may determine. It authorizes the Secretary of the Interior to subdivide lands into fractions of a section, and to depart from the rectangular mode of surveying when promotive of the public interest. Agricultural settlers upon lands heretofore classed as mineral, which have no precious metals, are allowed to pre-empt 160 acres at $1,25 per acre. Miners are also protected in water rights to which custom and possession have given them a claim.

ORIGINAL PAPERS.

The able contributions to our columns under this head have attracted much attention, and numerous have been the commendations bestowed upon them. The third of the series on Petroleum, by Professor Engelhardt, appears in this issue. We are very happy to publish such communications; and also to illustrate and describe new mining machinery—in short, everything which will interest and benefit those engaged in mining. We invite our friends, everywhere, to send us such communications and illustrations for publication.

Original Papers.

WRITTEN FOR THE JOURNAL OF MINING.

PETROLEUM.—Number Three.

By Francis E. Engelhardt, Ph. Dr., Professor of Chemistry in St. Francis Xavier's College.

The presence of petroleum in a certain part of the country may be deduced, first, from the geological formation of the ground, as I have previously shown, or, secondly, from certain surface indications. Among the latter we may class the actual appearance of oil, either in those rocks that form the upper stratum of the ground or its collecting in natural or artificial cavities of the soil, or, finally, its appearance upon the surface of pools, bogs, springs or lakes, where the oil generally forms a thin film or covering, easily recognized by its reflecting the rays of the sun in all the beautiful colors of the rainbow.

It may be, perhaps, superfluous to say anything in regard to the actual boring of the oil well, since it is well known to most readers. Nevertheless, I shall state the operation in as few words as possible, for the sake of those who may not be thus informed.

When the spot where the well is to be sunk is selected, the engineer erects a "derrick"* from 100 to 120 feet high. At a little distance a steam engine of from 6 to 8 horse-power is put into position, and the necessary tools being provided, the boring is commenced.

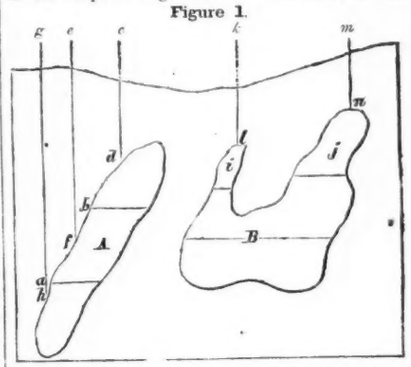
The first operation of the engineer consists in the driving of iron pipes of from 6 to 8 inches diameter and from 10 to 16 feet in length, so chosen as to fit together into the ground until the first stratum of solid rock is reached. The distance between the surface and the solid rock varies according to the locality where the boring is going on. Sometimes it amounts to only a few feet, while at other times it reaches more than 120 feet. Having cleaned the pipes from the enclosed soil, the engineer now attaches a drill of about 2½ inches in diameter to the "walking beam," and the latter to the steam engine, and then commences to drill. If his tools are in a good condition, and no accident happens, he is able to drill from 8 to 10 feet through the solid rock in one day. At Oil Creek, in Pennsylvania, the first stratum consists of slate and soapstone of 100 feet, the second of a sandstone of from 10 to 12 feet, and the third of slate and soapstone of from 25 to 30 feet in thickness. Below this soapstone is found a stratum of sandstone, which, when the spot is correctly chosen, yields gas, salt water and oil. Many of the Pennsylvania oil wells are found in this second sandstone stratum, but generally they yield oil, after a short time of natural flow, only by pumping, and hence are called "pumping wells." If the drilling be continued through this sandstone and the next stratum, a third sandstone is reached, which yields oil in greater abundance, and for a long period of time. The depth to which it is necessary to sink a well at Oil Creek, so as to enter this third sandstone stratum, is sometimes more than 600 feet.

In Canada West, at Enniskillen, according to Prof. A. Winchell, "the surface material consists of grayish or somewhat ferruginous clays 10 to 14 feet deep, succeeded downward by tough, sometimes plastic, generally stratified, blue clay, with calcareous spar, pyrites, fossils of the Hamilton group, and fragments of the same formation, extending to the rock or within a few inches of it. At the bottom, is generally found at Oil Springs, a bed of porous materials, consisting of glacial boulders, fragments of Hamilton limestones, gravel, and, in some cases, flowing quick-sand;" below this layer, a series of argillaceous rock is found, consisting of argillaceous and calcareo-argillaceous shales, shaly argillaceous and fossiliferous limestones, and rarely sandstone. At the base is found a "buff-colored granular, porous, magnesian limestone." "In some parts the above series is overlayed, as Prof. Winchel says, by from 2 to 100 feet of black bituminous and somewhat calcareous shale."

The rocks that follow the Black Shale are the Hamilton group; and the entire thickness of the latter, in the oil region of Canada West, is, according to his estimation, 350 feet.

When the oil is reached, iron pipes, of from 10 to 16 feet in length and two inches diameter, are screwed together and sunk down to the oil vein. Since, at times of heavy rain, the surface-water would rush down the well and thus injure its produce, a preventive in the shape of bags filled with flax-seed, fastened

Figure 1.



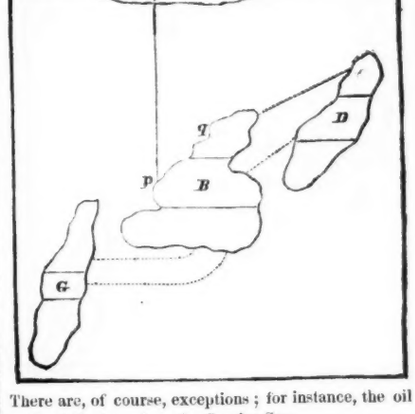
at intervals, is employed. The flax-seed, coming in contact with moisture, will expand, and thus prevent the water from penetrating into the well.

If the well is furnished in the manner as stated above, the oil either flows naturally or it is pumped up to the surface and collected in large tanks, from which it may be filled into barrels or other suitable vessels for transportation, and sold under the name of crude petroleum.

The depth of the oil wells differs, of course, according to the strata that have to be penetrated before the oil is reached. Some, therefore, are not more than 100 feet deep, while others are more than 1,000 feet. The depth of the well is no impediment to the procuring of the oil.

Oil wells, when they are first opened, as everybody well knows, yield a larger quantity of oil than when they have been in operation for some time. A decrease of oil is gradually perceived in oil wells till they give out altogether after running several years.

Figure 2.



There are, of course, exceptions; for instance, the oil wells at Zante and on the Caspian Sea.

The activity of certain oil wells is increased and decreased considerably by rains; others may flow without a marked decrease for years and then give out, and others again either flow constantly, increasing and decreasing in quantity in certain periods of time, or, give out altogether for minutes, hours and days, and then yield a fresh supply. This last phenomenon is repeated by the wells at regular intervals. Professor Evans, of Marietta College, has advanced several theories to explain the causes of these peculiar actions of oil wells, which I take the liberty of briefly stating.

Supposing the oil is collected in a single cavity, such

*A derick is a pyramidal structure of four corner-posts, fastened together in such a manner that they form a square of from 10 to 20 feet on the ground, and from 3 to 6 feet on the top.

as represented in FIGURE 1, at A, accompanied by water and gas: The three substances will occupy the space of the cavity according to their specific gravity—the water, being specifically the heaviest, will be at the bottom, and may reach to the first line, *a*; the oil will occupy the middle part, commencing at the line *a*, where we suppose the water stops, and going up till it reaches the second dark line, *b*; the gas will be found in the space left free by the other two substances, or in the upper part of the cavity.

If, now, a well be sunk at *c*, from the surface, which enters the cavity at *d*, gas will rush out with explosive violence, but neither oil nor water in abundance, because there is no power to force them up; a pump must consequenily be employed to force the oil up.

But if the cavity be entered with the drill by the line *e*, at the point *f*, or, in other words, if the space be entered which is occupied by the oil, the latter will be forced up with great violence, sometimes from 30 to 40 feet above the ground, caused by the great tension of the gas enclosed above the oil. The flow of oil will only continue as long as it is above the point at which the drill entered the cavity. The moment it reaches that point the flow will cease and the gas rush up. Again, if we enter by the next drill, represented by the line *g*, *h*, the phenomenon will be changed; instead of gas or oil, water will first be forced up, then water mixed with oil, and at last pure oil, until it reaches the point *h*, where the cavity was entered. The oil cavity, B, as represented in figure 1, is a cavity in which gas is found to occupy two different localities at *i* and *j*. Both are separated from each other by a descending or projecting portion of rock. Let us suppose a well to be sunk at *k*, reaching the cavity at *i*, as represented by the line drawn from *k* to *l*, what will happen? Gas will force itself out with great violence, followed by oil: the latter will flow for a very long period, since the compressed gas in the other part of the cavity, namely at *j*, acts upon the oil below. But, if during the time the oil flows from the well *k*, *l*, another well be sunk at *m*, entering the cavity at *n*, the first well will stop flowing, because the compressed gas that forced the oil up the first well becomes thereby released; hence both wells will yield oil only when a pump is employed.

To explain the regularity of flow in certain wells, Professor Evans supposed that there are several cavities in connection with each other, represented in figure 2. Let the central cavity B be the one that is entered by the drill *o*, *p*, and those on the right D and left G, connected with the former by fissures indicated by the dotted lines.

Oil will appear as soon as the central cavity is struck, and will flow till the force of the compressed gas at *G* is exhausted. Owing to the diminished tension of the gas in the central cavity, the gas and oil in the two other cavities force themselves partly into the middle one by the passages indicated by the dotted lines, until the gas in the central cavity becomes sufficiently compressed to equalize the pressure from the cavities on the right and left, and to raise a new quantity of oil to the surface. So the process repeats itself at certain periods of time; as an example, I may mention the Newton well, near Marietta, Ohio. It yields a fresh portion of oil at intervals of half an hour, expelling each time a barrel of oil.

To say how long the oil regions of our country may produce oil sufficient for our demands, is impossible, since some wells are known to have yielded oil for centuries, while others have given out in a few years. The expense for the boring of an ordinary well is from 7,000 to 10,000 dollars.

The quantity of oil produced in the United States in 1863 was 2,000,000 barrels, or 30,000,000 gallons, of which 28,000,000 gallons were exported. The average produce during the year was 5,000 barrels per day. At present the produce, if I am correctly informed, is 6,000 barrels. Canada produced, in 1862, about 300 barrels a day.

The oil lake of Trinidad, West India Islands, one mile from the coast, is a basin of solid bitumen, nearly 3 miles in circumference, and it is estimated that the lake is capable of producing 300,000,000 gallons of oil, of which 80 gallons, if employed to generate steam for boilers, are equal to one ton of coal.

The oil collected at Bakov, on the Caspian Sea, is valued by Mr. Abich at 3,000,000 francs annually, which might easily be doubled if it were in greater demand.

The Ragoon oil wells, 520 in number, have been in operation since an unknown period, and the annual product is said to exceed 400,000 hogsheads.

The oil obtained at Bakov and Ragoon is chiefly used for obtaining artificial light in Persia, Birmah and India.

WRITTEN FOR THE JOURNAL OF MINING.

MINING STATISTICS.

By DR. R. P. STEVENS.

The value of the mining interests of the United States is increasing in quantity so rapidly, that, from one national census to another, we can hardly keep track of it.

Indeed the measure of its statistics is so imperfect, or so interwoven, that we cannot draw conclusions from one decade to another. Enough, however, can be gained from the census reports of 1850 and 1860, to show that some mining interests increase at the rate of thirty per cent. per annum.

I propose to look a little into the statistics of the last report, and see what useful lessons can be gained from it.

The sum total of all mining economies and others closely allied to them, such as quarrying of marble, digging of clays for pottery, sands for glass, etc., amounted to $505,398,000. The amount of wealth thus added to the whole of the United States, can hardly be computed, for it is not for a year, like a crop of grass, or the product of the dairy, nor for two or three years like a crop of wheat, but for many years some of it for centuries. All products of the soil, all manufactured articles arising from them, may be looked upon as temporary, while that of mines is permanent. Some of it, like gold, silver, and iron, is never lost. In some form or other, it remains forever.

The precise value of raw material raised from mines was about $100,000,000, which was equal to the value of the live stock of New York, or one-tenth of the whole country. Now, of the live stock of 1860, there remains at the present none of the sheep, hogs, fowls, beeves, a few of the young cattle, and a larger proportion of horses. At the next census, none of it will remain, and the amount will have to be renewed by labor. But of the mining product, scarcely any will be out of calculable value; much of it will be of more value than at the time of its raising. This remark will apply to all iron ore and auriferous quartz, especially pyritiferous ores.

The industrial economies of mines is another interesting feature of the mining record. Let us look a little into these in detail. The number of States engaged in mining iron was ten, (10) viz. Pennsylvania, Michigan, New Jersey, New York, Missouri, Massachusetts, Connecticut, Maryland, New Hampshire and Ohio. Their rank, in the amount produced, is in their order named. New Hampshire and New Jersey raised mainly the magnetic ores, New York the magnetic and hematites, Connecticut hematites, Pennsylvania and Ohio raised the argillaceous ores of the coal measures, and Missouri and Michigan raised the compact red and black oxides. In the wide geological range of our country, every variety of this mineral is found and utilized.

One hundred and fifty-seven mining establishments were engaged in raising iron, employing three thousand one hundred and seventy-seven men, and paying them in wages nearly a million of dollars. The capital reported was $2,090,527, while the value of the products was $7,723,860. If we add interest at 7 per cent. to the capital, and the amount paid for wages, we have $3,200,000 in round numbers. The product is more than two-fold.

The importance of iron thus mined assumes a far greater magnitude, when we examine the manufacturing interests immediately connected with, and dependent upon it.

There are 97 bloomeries, 286 furnaces, 256 rolling mills, 16 mills for drawing iron wire, 17 car-wheel manufactories, 1,412 establishments for castings, 19 for locomotives, 74 for sewing machines, 239 for arms, 443 for hardware, 382 for steel, 99 for nails, 134 for scythes, and 14 for printing presses; total 3,546, employing $83,453,625, and giving labor to one hundred and two thousand, one hundred and twenty workmen, and paying them annually $35,202,363.

They earned for their capitalists $132,724,976.

From this amount there should be deducted the amount manufactured from foreign importations. We have still, after liberal allowance, $125,000,000 from American iron, against a capital of $83,000,000.

COPPER.—Another great mining interest, our mines of native metal, exceed those of all other nations. Up to the present time, more than one half of all the product of our mines is from this source.

There are 42 mining establishments producing 499,534 tons of ore, employing a capital of $21,400,000, and giving labor to 5,039 men, and paying them $1,793,500 in wages; the sum total of product was $3,978,282. The rank of States in production was as follows:—Michigan, New Mexico, Tennessee and North Carolina.

The smelting business growing out of this branch of mining amounts in the aggregate of home production and foreign importation to $6,622,000, employing a capital of $2,405,000, and 984 hands, whose wages amounted to $230,400.

Growing out of the smelting business and connected with it, are 194 establishments engaged in copper and brass working. The number of hands is 2,144, and wages $874,264, and capital $3,105,450, and total value of work produced $5,955,553.

We estimate about one-third of this amount is chargeable to American raw material, or $1,985,184, product of American mining of copper and zinc.

COAL.—We raised 15,000,000 tons of coal, giving employment to 36,469 workmen, and paying them in wages $9,650,000; the value of their labor in coal raised at the mouth of the mines was $20,000,000 against a capital of $39,428,670.

The following curious calculations can be made from the amount of coal thus raised. The dynamic power of all force may be estimated, and usually is, by units of heat. The mechanical power of this amount of coal is equivalent to the muscular power of 5,250,000 of horses; or, reduced to man power, it would be equivalent to adding to our working force of men 42 millions, working eight hours a day, supposing the whole amount raised was utilized in generating steam. But suppose only one half was used for this purpose, still we have an equivalent of 21,000,000 of working men added to our population.

Conceive, for one moment, the effect upon our city, if it were deprived of this fuel. Every steam engine would be stopped, every building deprived of gas, darkness would be in our streets and dwellings, and there would be a return to the old tallow dip, for the poor; with kerosene, parafine, and wax for the rich. Thirty thousand men, women and children would be out of employment, and the amount of city manufactures would fall off at once $50,000,000.

Four millions of tons of bituminous coal, foreign and domestic, was manufactured into gas. The increase of value of the American portion was $9,000,000. The manufacture of gas gave employment to 5,484 workmen, and paid them in wages $2,901,264.

From the consumption of gas, arises the mechanism of gas fixtures of all kinds. This branch of art employed 2,000 men, using a capital of $3,000,000, and paying them nearly a million of dollars in wages. The amount of capital employed was $3,000,000.

LEAD.—The census reports are remarkably deficient in their statistics upon this metal. Missouri and Iowa, well-known producing States, are omitted, while in Wisconsin mining and smelting are merged together. The sum total of mining, smelting, and manufacture was $12,000 000.

SILVER.—The report is also deficient in this metal. Only one mining establishment is reported, and this in California, producing $810,000. The silver manufactures amounted to $5,000,000

GOLD.—7,202 mining establishments are reported. Eight States and territories were engaged in this business. In the amount produced, California took the lead, New Mexico followed, then succeeded Oregon, North Carolina, Georgia Virginia, and finally South Carolina. These establishments raised $47,566,000. The amount expended for labor was $23,253,000, while the capital employed was but $12,119,865.

Twenty-two States were engaged in the manufacture of gold, having 452 establishments. The capital employed was $10,895,320. The number of workmen was 6,198, and the amount of their wages was $3,469,800.

PETROLEUM.

NAME OF COMPANY.	CAPITAL.	PAR VALUE.	LAST DIVIDEND.	OFFICE.
NEW YORK.				
Adams	$ 500,000			
Aladdin	100,000	2 00		229 Broadway.
Alleghany	1,000,000	10 00		
Alleghany Oil and Lumber	100,000	100 00		113 Wall street.
Alleghany and Kinzua R Pet				80 Broadway.
Albert Gallatin	500,000	5 00		157 Broadway.
Allen Wright	1,000,000	10 00	2 per cent., Jan'y	27 Wall street.
American Oil and Mining	1,500,000	50 00	1 per cent., June	22 William street.
American Illuminating	1,000,000	10 00		46 Broad street.
American	500,000	100 00		10 Pine street.
Amity Oil	250,000	10 00		71 Broadway.
Amber	100,000	10 00		
Anderson	1,000,000	10 00		
Anticlinal Rock Oil	250,000	10 00		21 Wall street.
Artesian	50,000	25 00		155 Broadway.
Associate				
Atlantic	300,000	10 00		36 Pine street.
Atlas	75,000	10 00		33 Pine street.
Atlantic and Great Western				
Adamantine Oil Company	500,000	10 00		21 Nassau street.
American Petroleum	500,000	100 00		10 Pine street.
Artesian	300,000	2 00		8 Pine street.
Bainbridge	500,000	5 00		71 Broadway.
Ball Farm				8 Wall street.
Barry	200,000	5 00		81 John street.
Beech Tree	300,000	5 00		46 Beaver street.
Beekman	1,000,000	10 00		29 Broad street.
Bennehoff and Pit Hole	200,000	2 00	2 per cent., Jan'y '66	26 Pine street.
Bennehoff Run	500,000	100 00	7 per cent., September	8 Pine street.
Bennehoff Reserve	1,000,000	10 00		67 Wall street.
Bennehoff and Sahm	300,000			
Bennington	400,000	5 00		24 Pine street.
Bergen Oil and Coal	2,000,000	10 00		4 Broad street.
Bennehoff Mutual	300,000	5 00		31 Nassau street.
Bissell Oil and Manuf'g	1,000,000			131 Water street.
Black Creek	300,000	2 00		13 Broad street.
Bliven				
Blood Farm	1,000,000	20 00		8 Pine street.
Boiling Spring and Deer Lick	2,000,000	10 00		10 Wall street.
Boston Petroleum	2,000,000		2 per cent., June	152 Broadway.
Bradley Oil	600,000	5 00	2 per cent., November	7 Nassau street.
Braxton County, (West Va.)				61 Cedar street.
Brevoort	500,000	10 00	2½ per cent., October	126 Maiden Lane.
Brooklyn	500,000	5 00		74 Broadway.
Brown's Run				
Black River	300,000	10 00		8 Pine street.
Blood Farm	5,000,000	100 00		10 Pine street.
Buchannan Farm	4,000,000	10 00		8 Broad.
Buchannan Oil and Rect'g	200,000	5 00		
Buck-eye State	600,000	2 00		111 Broadway.
Buena Vista				
Bunker Hill	1,000,000	5 00		155 Broadway.
Burkesville, Ky., Oil and Mining	1,000,000	100 00		60 John.
Burning Spring Central				
Burning Spring, (West Va.)				
California	1,000,000	100 00		69 Liberty.
Campbell's Run Oil & Min'g	300,000			
Cascade	500,000	5 00		80 Broadway.
Cattaraugus Oil	1,000,000	10 00		17 Nassau street.
Central	5,000,000	100 00		8 Pine street.
Ceder Creek and Bu'g Spng's	500,000	5 00		
Charter Oak				
Chemical	250,000	5 00		117 Wall street.
Cherry Creek	2,000,000	10 00		8 Wall street.
Cherry Run	500,000	2 00		71 Broadway.
Cherry Run and Shenango	600,000	5 00	May	37 Nassau street.
Cherry Run and Pittsburg	200,000	1 00		
Citizens	500,000	10 00		29 Beekman street.
Clarion Coal and Oil	1,000,000	10 00		81 John street.
Clark and Sumner	750,000	10 00		25 Pine street.
Clifton	500,000	10 00		71 Broadway.
Clinton	500,000	10 00	1 per cent., Dec. '65	
Columbia Oil (Pitts.)	2,500,000	50 00	3 per cent., August	42 Cedar street.
Combined	1,000,000	5 00		80 Broadway.
Commercial	3,950,000	100 00		159 Front street.
Commonwealth	1,000,000	10 00	1 per cent., October	71 Broadway.
Congress				
Connate Mutual	5,000,000	10 00		24 Pine street.
Consolidated (of N. Y.)	1,000,000	10 00		19 Broad street.
Constitution				
Continental				52 Wall street.
Cosmopolitan				
Cotter Farm	1,000,000	5 00		42 Pine street.
Crescent (of New York and Canada	1,200,000	10 00	$10 per share, Dec. '65	100 Broadway.
Cuba Oil	500,000	10 00		10 Pine street.
Connecticut Artesian	50,000	25 00		155 Broadway.
Dana				
David Crockett	1,100,000	10 00		18 William street.
Dawn (of Canada West)				22 Broad street.
De Kalb	350,000	10 00		30 Broad.
Devon	150,000	1 00		71 Broadway.
Dividend				
Duffus				
Dutchman Run	1,000,000	10 00		71 Broadway.
Duck Creek	1,000,000	5 00		161 Broadway.
Eclectic				
Eclipse	1,000,000	5 00		25 William street.
Elk River	1,000,000	5 00		61 Cedar street.
Empire and Pit Hole	160,000	2 00	2 per cent., Jan. '66	26 Pine street.
East Branch, Pa	500,000			1 Park Place.
Eleanic	750,000	5 00		155 Broadway.
Elkton Coal and Oil	1,000,000	50 00		58 Liberty street.
Empire City	1,000,000	5 00	2 per cent., June	74 Broadway.
Empire City Oil	400,000	4 00		69 Wall street.
Enterprise Oil	100,000	10 00		115 Broadway.
Enniskillen	500,000	10 00		
Essex	600,000			
Eureka Amber Oil	600,000	5 00		157 Broadway.
European	100,000	10 00		54 William street.
Everett	300,000	10 00		74 Beaver street.
Ever Flowing				
Excelsior	500,000	5 00		74 Broadway.
Fair Farm				
Favorite				181 Pearl street.
Fee Simple, (of West Virginia.)	600,000	2 00		1 Hanover Square.
Fielder				
First National	1,000,000	5 00	2 per cent., March	20 Broad street.
Flowing Oil	50,000	50 00		28 Pine street.
Forest County Oil	650,000	1 00		
Forest County Petroleum	500,000			
Foster Island	300,000	10 00		28 Broadway.
Fountain Pet	250,000	5 00	3 per cent., April	80 Broadway.
Fountain Oil	1,000,000	10 00		74 Broadway.
Fowler Farms	300,000	10 00		82 Broadway.
Fox Farm				
French Creek	1,000,000			
Frost	250,000	10 00		74 Broadway.
Fulton Oil (Johnson's)				
Fulton	600,000			
Garibaldi		5 00		71 Broadway.
Garland	500,000			
General Grant	500,000	5 00		25 Nassau street.
Germania	3,000,000	5 00		33 Pine street.
Girard	100,000			
Good Hope	750,000	10 00		
Granite State				
Great Western Consolidated	2,500,000	100 00		27 Wall street.
Great Eastern	3,000,000	10 00		
Great Kanawha	300,000	10 00		
Great Northern				
Green Island Oil Creek	300,000	5 00		74 Broadway.
Great Republic	500,000	10 00		25 Park Row.
Guild Farm	1,000,000	10 00		290 Broadway.
Governor Chase	1,000,000	5 00		25 Nassau street.
Hamilton	1,000,000	10 00		80 Broadway.
Hammond	500,000	25 00	5 p.c., 3 mos., to Aug. '64	
Hancock (of West Va.)				
Hard Pan	120,000	3 00	3 per cent., Feb. '66	
Harper Farm	1,000,000			
Harmon	400,000	5 00		171 Broadway.
Hazelton	250,000			
Henry Bend	300,000	10 00		64 Broadway.
Henry Camp	600,000	10 00		71 Broadway.
Henry Clay	500,000	10 00		
Heydrick Brothers	1,500,000	10 00	3 per cent., April	80 Broadway.
Heydrick	600,000	10 00	5 per cent., June	80 Broadway.
Hickory Island				
Hickory Farm	500,000	5 00		92 Maiden Lane.
Highgate	1,500,000	5 00		33 Pine street.
Hinman & Oakley				
Hoffman	1,000,000	2 00		8 Pine street.
Home	1,000,000	20 00		8 Pine street.
Homestead	250,000	5 00		17 Broadway.
Homowack				
Hope				
Hudson	250,000	10 00		67 Beaver street
Hudson River	600,000	10 00		99 Maiden Lane.
Huguenot	400,000	5 00		128 Maiden Lane.
Huidekoper	200,000	100 00	3 per cent., July	22 William street.
Imperial Burning Spring	650,000	5 00		61 Cedar street.
Independent	750,000	5 00		42 Pine street.
Indian Rock Oil	1,000,000	100 00		73 Broadway.
Indiana	1,000,000	100 00		4 Broad street.
Inexhaustible	2,500,000	5 00		10 Wall street.
Ironsides	350,000	10 00		71 Broadway.
Irving	500,000	5 00		46 Cedar street.
Island	500,000	10 00	1 per cent., June	36 Pine street.
Ivanhoe	185,000	2 00		44 Pine street.
John Anderson	2,000,000	10 00		106 Broadway.
Keith Oil	250,000	5 00		71 Broadway.
Kanawha	500,000	10 00		154 Front street.
Kentucky National	2,000,000	5 00		
Ky. & West'n Va. Oil & Coal	1,500,000	10 00		6 Rector street.
Kenzua	12,000,000	10 00		
Knickerbocker Petrol'm	1,000,000	10 00	1 per cent., Aug., '64	139 Broadway.
Lafayette Petroleum & Coal	600,000	5 00		
Lamb Farms	500,000	20 00	3 per cent., July	31 Nassau street.
Lawrence Oil & Mining	300,000	6 00		2 South street.
Latonia Town & Oil	1,000,000	10 00	1 per cent., July	60 Broadway.
Leading (of West Va.)	500,000	5 00		
Lennox				
Lilly Run				
Little Hickory				
Little Kanawha & Elk River	6,000,000	100 00		61 Cedar street.
Live Yankee	250,000	1 00		78 Broadway.
Long Island				
Loomis Oil	150,000	1 00	3 per cent., April	71 Broadway.
Lubricating Oil	500,000	5 00		24 Pine street.
Liberty Oil	140,000	1 00		77 Cedar street.
Magnolia Oil	500,000	10 00		394 Broadway.
Mahoming Valley	1,000,000	10 00		3 Rector street.
Manhattan	50,000	2 00		73 Broadway.
Mammoth				
Maple Grove	250,000	5 00		41 Fulton street.
Magenta Oil	500,000	10 00		71 Broadway.
Maple Shade (of N. Y.)	500,000	10 00	1 per cent., Oct.	67 Wall street.
Marietta Petroleum	1,000,000	10 00		
Marietta Pet'm & Mining	1,500,000	10 00		51 Broad street.
Marietta Pet'm & Oil	1,000,000	10 00		14 Vesey street.
Marietta Run Oil & Coal	250,000	5 00		
Manross Oil	400,000	5 00		77 Cedar street.
McClintock Farm & Cherry T	1,000,000	100 00		71 Broadway.
McTate	300,000	5 00		7 Nassau street.
McKinley	250,000	10 00	4 per cent., April	71 Broadway.
McKinley No. 2	250,000	10 00		142 Broadway.
Mendenhall Oil & Mining	2,000,000	20 00		
Metropolitan Oil	500,000	5 00		92 Broadway.
Metropolitan Oil & Coal	1,000,000	10 00		6 Rector street.
Michigan Central	500,000	10 00		10 Pine street.
Midas				
Middlesex Valley	500,000			
Mill Creek				
Miller Farm Oil	300,000	5 00		36 Pine street.
Mineral Pt. Pet'm Coal & Iron		10 00		71 Broadway.
Minerva	1,500,000	5 00		4 Cedar street.
Monongahela & Kanawha		5 00		78 Broadway.
Montana	1,500,000	5 00	3 per cent., Aug.	78 Broadway.
Mount Vernon	300,000	5 00	1 per cent., Jan.	154 Water street.
Muskingum	500,000	5 00		157 Duane street.
Muskegon				
Mud Creek Valley				
Musk Rat Run				
Mutual Benefit	500,000	2 50		130 Pearl street.
Mutual Interest				
Mohawk Valley	600,000	3 00		92 Broadway.
Newark	130,000	10 00		37 Park Row.
New Lisbon				
Napoleon				
National Oil	200,000	5 00		99 Maiden Lane.
New England	150,000	2 00	5 per cent., Mar.	60 John street.
New Lebanon	150,000	5 00		6 Wall street.
New York & Allegany	250,000	5 00		134 Maiden Lane.
New York & Canada	500,000	50 00		29 Broadway.
New York Oil				
New York & Boston	500,000	5 00		12 Wall street.
New York & New England	1,200,000	5 00		57 Broadway.
New York & Conn.	750,000	7 50		69 Broadway.
New York & Chicago	500,000	10 00		28 Broadway.
New York & Ohio	600,000	50 00		111 Broadway.
N. Y., Phila. and Balt	300,000	1 00		71 Broadway.
New York & Phila.	1,500,000	5 00		57 Exchange Place.
New York & Pa.	2,000,000	10 00		156 Broadway.
New York & Providence	300,000	10 00		28 Broadway.
New York & Liverpool	1,000,000	10 00		71 Broadway.
New York & West Va.	500,000	10 00		157 Broadway.
New York & Pa. Pet'm	500,000	5 00		50 Broadway.
New York & Rothwell				
New York & Hughes River	1,000,000	10 00		
New York & Ky. Oil	1,000,000	100 00		
New York & Ky. Pet'm	500,000	5 00		
New York & Marietta	200,000			

PETROLEUM—Continued.

NAME OF COMPANY.	CAPITAL.	PAR VALUE.	LAST DIVIDEND.	OFFICE.
New York Oil Creek	500,000	5 00		108 Wall street.
New York & Pa. Oil	1,000,000			
New World (of West Va.)	500,000	10 00		
Normal	500,000	5 00		71 Broadway.
North Star				
Noble & Delamater (of N. Y.)	300,000	3 00		67 Wall street.
Noble Farm	600,000	5 00		74 Broadway.
Noble Well	500,000	25 00	2½ per cent. Feb.	7 Pine street.
New York & Kentucky Oil & Mining	100,000	100 00		60 John street.
North American	1,250,000	10 00		74 Broadway.
Northern Light	1,000,000	10 00	3 per cent. Feb.	181 Pearl street.
Neashannock Creek Oil	1,000,000	5 00		39 Nassau street.
New York & Ohio Mutual	150,000	10 00		71 Broadway.
Ocean	1,500,000	100 00	2 per cent. July	37 Broadway.
Oceanica	2,000,000	10 00		58 Broadway.
Ohio	1,000,000	100 00	2 per cent. Mar.	4 Broad street.
Ohio, Pa. & Va.	1,000,000	5 00		37 Nassau street.
Ohio & Ky. Pet'm & Mining	1,000,000	5 00		394 Broadway.
Oil City Pet'm Co.	500,000	10 00	3 per cent. Oct.	8 Pine street.
Oil Creek	1,000,000	20 00	3 per cent. July	7 Nassau street.
Oil Run	1,000,000	5 00		66 Wall street.
Old Dominion	500,000	10 00		71 Broadway.
Oriental	48,000	12 00		71 Broadway.
Pacific	1,000,000	10 00		17 William street.
Pacific Coast	5,000,000	100 00		61 Cedar street.
Palmer	500,000	10 00		155 Broadway.
Peninsula (of Ohio)	400,000	5 00		62 William street.
Parent Oil Co. Guyandt W. V.	7,000,000	10 00		
Petroleum Consolidated				
People's Pa.	1,000,000	5 00		27 Courtlandt street.
People's Mutual	1,000,000	10 00		155 Broadway.
Phil Sheridan	2,000,000	5 00		25 Nassau street.
Phillips	200,000	5 00	1 per cent. Mar. '65	
Pit Hole Consolidated				
Pit Hole Creek (of New York)				
Pit Hole Farms	150,000	3 00		26 Pine street.
Pit Hole Mutual	1,000,000	25 00		
Pit Hole & Two Mile Run	2,500,000	25 00		
Point Pleasant	300,000	5 00		82 Broadway.
Pit Hole C'k, Alleghany river	1,000,000	25 00		70 Broadway.
Pit Hole Creek	500,000	10 00		62 William street.
Plainfield	300,000	5 00		34 Pine street.
Pleasant County Oil	500,000	5 00		11 Wall street.
Porcupine	1,000,000	5 00		71 Broadway.
Powell Oil & Coal	300,000	3 00		66 Wall street.
President	5,000,000	25 00		71 Broadway.
Prescott				
Prince Run of West Va.				
Radiant	50,000	10 00		
Rainbow Creek of Ohio	500,000	5 00		175 Broadway.
Rathbone of West Va.	450,000	3 00		
Rathbone Oil Tract	5,000,000	100 00		69 Wall street.
Rawson Farm	300,000	5 00		1 Hanover Square.
Red Stone				
Remington				
Rensellaer	50,000	5 00	5 per cent. to Oct. 31,	
Revenue	250,000	50 00	1 per cent. Feb. '65	
Resolute	250,000	5 00		41 Fulton street.
Riceville				
Rickett's Farm	500,000	10 00		69 Wall street.
Ritchie Co. West Va.	800,000	5 00		156 West street.
Richardson Farm	500,000	5 00		
River Side	1,000,000	10 00		
Robinson	100,000			
Rockland Pet'm & Mining	500,000	10 00		
Rocky Run				
Rowland	150,000	10 00		
Rushville				
Rochester Petroleum and Peat				
Rynd Farm Oil	2,000,000	10 00	4 per cent. Feb. '65	71 Broadway.
Savon de Terre	300,000	3 00		8 Broad street.
Sage River & Oil Creek	1,000,000	10 00		77 Broadway.
Sage Run Pet'm Ass'n	120,000	4 00		81 Beaver street.
Sandy River	500,000	100 00		
Scott's Farm				
Sciotto & Sandy	2,500,000	10 00		155 Broadway.
Second National	3,000,000	15 00		200 Broadway.
Second National (of W Va.)	500,000	10 00		
Seneca Reservation	1,000,000	50 00		
Security (N. Y.)	200,000	2 00		30 Broad street.
Security Pet'm	600,000	5 00		90 Broadway.
Seymour				
Shades River	600,000	5 00		74 Broadway.
Shade River	360,000	3 00	5 per cent. for Jan.	121 Chambers street.
Shafer Farm	500,000	10 00		28 Pine street.
Sherman	500,000	5 00		42 Pine street.
Sherman & Barnsdall	750,000	2 50		171 Broadway.
Sheba Oil	500,000	5 00		37 Nassau street.
Shrive Farm	500,000	5 00		81 Beaver street.
Smith's Ferry and Beaver Creek Oil and Salt Co.	300,000	5 00		156 Broadway.
Shoe & Leather				92 Broadway.
Southard	1,000,000	10 00		74 Broadway.
Standard	600,000	5 00		74 Broadway.
Story & McClintock	500,000	10 00		57 Exchange Place.
Stella	500,000	5 00		229 Broadway.
Sugar Creek				124 Nassau street.
Sun Oil	200,000	2 00		
Star	300,000	3 00		
Star Pet'm & Mining	1,000,000	10 00		
Stewart's Run				
Success	1,000,000	10 00	2 p. c., 3 m's. end Ja. '65	15 South W'm street.
Tarbell				54 William street.
Tack	500,000	5 00		66 Wall street.
Talisman	500,000	10 00		61 Cedar street.
Tarentum Oil, Salt & Coal	500,000	100 00		40 William ttreet.
Tarr Farm	3,000,000	100 00	2 per cent. Feb.	Hanover Square.
Taylor Farm	150,000	5 00		
Tarragenta	500,000	5 00		
Tarbell				
Talcott's Island				
Tionesta & Sugar Creek Oil	500,000	5 00		Pearl street.
Titus Estate	1,000,000	10 00		74 Broadway.
Tygerts Creek	300,000	3 00		17 William street.
Tionesta and Horse Creek				
Titus Oil	630,000	10 00	3 per cent. Feb. 65.	
Titusville Oil & Land				
Tradesmens	1,000,000	10 00		
Tucker				
Union	125,000	10 00	10 per cent., Sept.	
United Pet'm Farms Ass'n	2,000,000	2 00	1½ per cent., Feb.	366 Washington st.
United Republic	2,500,000	10 00		8 Pine street.
United States	500,000	10 00	10 per cent., Nov.	74 Broadway.
Upper Duck Creek	150,000	75 00		47 Exchanee Place.
U. S. Disintegrating Oil	2,000,000	10 00		249 Pearl street.
Venango	400,000	10 00	2 per cent., for Jan., '66	157 Broadway.
Venango & Pit Hole	300,000	10 00		12 Old Slip.
Venango Lubricating				
Venango & Mill Creek				
Vesta Pet'm & Refining	500,000	10 00		4 Cedar street.
Virginia	1,000,000	100 00		
Vesuvius (of W. Va.)				

NAME OF COMPANY.	CAPITAL.	PAR VALUE.	LAST DIVIDEND.	OFFICE.
Wa hun				
Walnut Bend	200,000	10 00		
Walker Creek (of W. Va.)	250,000	5 00		
Washington County				
Ward Farm	500,000	5 00		1 Rector street,
Watson	500,000	10 00		74 Broadway.
Watson Farm	500,000	5 00		
Webster	500,000	5 00		
Westmoreland Pet'm	600,000	10 00		
Widow McClintock	600,000	5 00		74 Broadway.
William Penn Oil	250,000	10 00		67 Beaver street.
West Hickory Oil and Mining	1,000,000	5 00		
West Virginia Oil & Coal	3,000,000	10 00		
Winona	1,000,000	10 00		31 Nassau street.
Woods & Wright Oil Creek	650,000	100 00		66 South street.
Wyoming Rock Oil (C. W.)	1,000,000	10 00		115 Broadway.
Western Union				
West'n Va. Oil & Mining				
Wilcox				
Wolf Creek	200,000	5 00		49 William street.
Working People's	2,000,000	1 00		5 Rector street.
Wyoming (of Canada West)	250,000	10 00		
Washington Pet'm & Mining	1,000,000	10 00		4 Rector street.
PITTSBURG.				
Amazon Oil & Mining	1,000,000	5 00		
Amber	100,000	10 00		
Acme	200,000	20 00		
Ætna	200,000	5 00		
Alleghany Valley	30,000	3 00		
Alleghany & Pittsburg	500,000	10 00		
Alleghany River	75,000	1 00		
Banner	150,000	1 00		
Blood Farm & Ohio	120,000	2 00		
Caldwell of Philadelphia	2,000,000	10 00		
Central Basin	125,000	1 00		
Cherry Run Central	250,000	1 00		
Cherry Run & Blood Farm	150,000	1 00		
Cherry Run & Pitholo	200,000	1 00		
Columbia	2,500,000	50 00		
Culbertson's Run	150,000	2 00		
Champion	300,000	10 00		
Cairo Oil & Mining	240,000	5 00		
Duck Creek	2,000,000			
Duck Creek Valley	250,000	1 00		
Dunkard Creek Union	60,000	1 00		
Eldorado	1,000,000	5 00		
Enterprise	50,000	1 00		
Fayette	250,000	5 00		
Federal	480,000	8 00		
Fleming & Blood	100,000	4 00		
Fuller Reserve	100,000	1 00		
Frew	200,000	1 00		
Franklin and Sandy Coal and Oil	250,000	1 00		
Germania	200,000	5 00		
Great American	500,000			
Grove Farm	300,000			
Gallagher	200,000			
Hemlock	100,000			
Horse Neck	100,000			
Hocking Creek & Venango	80,000			
Iron City	150,000			
Jackson's Run	30,000			
Kanawha & Chestnut Run	150,000	1 00		
Lincoln Oil & Mining	100,000	1 00		
Lucesco		25 00		
Meadow		1 00		
Merchants	50,000	50		
McAboy Cherry Run	150,000	1 00		
Monongahela Pioneer	450,000	1 00		
Muskingum Oil Spring	500,000	5 00		
Muskingum & Duck Creek	150,000	1 00		
Midas	200,000	1 00		
McCrea	80,000	1 00		
Muskingum	300,000	2 00		
Nonpareil	60,000	5 00		
National Refining & Storing	200,000	10 00		
New York & West Va.				
Newell's Run				
Ohio Valley	60,000	1 00		
Oil Basin	500,000	10 00		
Oil City & Pittsburg	30,000	2 00		
Oil Creek & Cherry Run	300,000	3 00		
Paxton	500,000	5 00		
Phillips	200,000	5 00		
Pittsburg & New York	175,000	1 00		
Pittsburg & Philadelphia	80,000	10 00		
Pittsburg & West Va.		1 00		
Parker's Creek & Alleghany River	300,000	1 00		
People's	60,000	2 00		
Pittsburg & Brooklyn	250,000	2 00		
Pittsburg & Enterprise				
Panther Run & Alleghany River	300,000	1 00		
Pittsburg & Mount Pleasant	100,000	5 00		
Pittsburg, New York & Tionesta	200,000	10 00		
Pittsburg & Westmoreland	100,000	5 00		
Pearl	25,000	100 00		
Revenue	60,000	1 00		
Ritchie	160,000	1 00		
Ross	100,000	1 00		
Superior Rock Oil	25,000	1 00		
Shirk Farm	100,000	1 00		
Shirk's Island	100,000	1 00		
Stella	250,000	1 00		
Star Wells	130,000	1 00		
Steel Well	5,000	50 00		
Smoky City Rock Oil	20,000	5 00		
Steffee	160,000	1 00		
Story	25,000	5 00		
Tarr Story & Cherry Run	250,000	1 00		
Triumph	300,000	2 00		
Union Lubric	250,000	1 00		
Union Cherry Run Basin	250,000	1 00		
Union Oil & Coal	100,000	1 00		
Venango Central	75,000	1 00		
Venango Central & Duck C'k	100,000	1 00		
Western Pennsylvania	450,000	3 00	2 per cent. for March,	
West Virginia	100,000	2 00		
Whitely Creek	200,000	5 00		
Wolfe Creek	150,000	1 00		
Warren & Venango	30,000	100 00		
Wallover	80,000	50 00		
West Virginia Basin	20,000	1 00		
Cumberland River	500,000	1 00		
Copeland Farm	500,000	5 00		
Dunkard Creek Pet'm	250,000	1 00		
Garrard	150,000	1 00		
Good Intent				
Great Western of Ohio	1,000,000	5 00		
Macksburg	225,000	3 00		
Murray	1,000,000	1 00		
Pittsburg & Stewarts Run	1,000,000	1 00		

PETROLEUM—Continued.

NAME OF COMPANY.	CAPITAL.	PAR VALUE.	LAST DIVIDEND.	OFFICE.
Pearl Oil Manufacturing			4 per cent for July	
Pittsburg & Little Beaver C'k				
Ralston			1¼ per cent. for Oct.	
Tenant Farm	150,000	1 00		
Pittsburg & Boston	400,000	5 00		
PHILADELPHIA.				
Allegany Riv. & Schull's Run Oil Co.	375,000	2 50		Library street.
Brandon Island	500,000	5 00		524 Walnut street.
Bruner Oil & Mining	500,000	5 00		425 Chestnut street.
Bull Creek Oil Co.	1,000,000	10 00		309 Walnut street.
Burning Spring	1,000,000	10 00		113 Chestnut street.
Cherry Run Oil	200,000	10 00		419 Walnut street.
Clarion River Oil Cos.	500,000	3 00		341 Walnut street.
Clark Oil & Mining	500,000	5 00		529 Chestnut street.
Dalzell Pet'm	2,000,000	10 00		Bank Buildings.
Densmore Oil	500,000	10 00		Bank Buildings.
Donaldson Oil	500,000	5 00		328 Walnut street.
Drake Pet'm	1,000,000	10 00		36 South Third street.
El Dorado Oil Co	1,000,000	5 00		Cor. Fifth & Wal't sts.
French Creek Lubricating	450,000	15 00		524 Walnut street.
Gilfillan Oil Co	500,000	8 00		409 Walnut street.
Great Basin Oil Co.	350,000	5 00		Farquhar Buildings.
Hibberd Oil Co.	500,000	5 00		524 Walnut street.
Jersey Well Oil Co.	500,000	2 00		429 Chestnut street.
Krotzer Farm	500,000	5 00		425 Chestnut street.
McElheny Oil	1,000,000	10 00		Bank Buildings.
Mercantile Pet'm	400,000	5 00		303 Walnut street.
National Oil Creek	400,000	10 00		303 Walnut street.
Philadelphia & Oil Creek	500,000	10 00		327 Walnut street.
Phillips Oil Co.	200,000	5 00		303 Walnut street.
Pittsburg & Boston	400,000	5 00		14 Farq'har Buildings.
Pouring Rock & East Sandy	200,000	1 00		619 Walnut street.
Tarr Homestead Oil	1,000,000	10 00		274 South Third st.
Upper Island Oil	250,000	5 00		425 Chestnut street.
Volcanic Oil & Coal	1,000,000	10 00		11 Merchant's Ex.
Wallace Oil Co.	450,000	5 00		134 South Whf.
Walnut Island Oil	1,000,000	5 00		425 Chestnut street.
BOSTON.				
Fuller Farm Oil	250,000	10 00		233 Sta street.
BALTIMORE				
Baltimore Pet'm	500,000	5 00		46 Second street.
New York, Philadelphia & Baltimore Consolidated	300,000	1 00		1 Carroll Hall.
ROCHESTER				
Titus Oil	630,000	10 00		

GOLD.

COMPANY.	SHARES.	STOCK.	SITUATION OF MINE.	SECRETARY & PLACE OF BUSINESS.
Acadia			Nova Scotia	H. M. Nelson, 24 City Ex., Boston.
Albion	$	300,000	Halifax, Nova Scotia	H. M. Nelson, 24 City Ex., Boston.
Alps	100,000	250,000	Illinois Central Dist., Col.	J. Stanton, Jr., 284 Pearl, N. Y.
Atlantic				Chas. Barett, 13 Doane, Boston.
Atl tic & Pacific	50,000	5,000,000	Humboldt T., Humboldt co.	J. N. Sewall, 8 Broad, N. Y.
American	100,000	5,000,000	Gregory Dist.	
American Flag	60,000	600,000	Nevada Dist., Col.	H. Foles, 12 Pine, N. Y.
Astor	200,000	1,000,000	On Comstock Lode	J. Chapman, 71 Broadway, N. Y.
Baltic			Colorado	New York.
Bates & Baxter			Colorado	New York.
Bay State	200,000		Colorado	Lem'l Bangs, Boston.
Buton	100,000	500,000	Colorado	F. W. Capen, N. Y.
Black Hawk	50,000	5,000,000	Gilpin co., Col.	D. Littlejohn, 81 John, N. Y.
Beacon		500,000	Halifax co., Nova Scotia	J. B. Post, 20 Ex. Pl., N. Y.
Bobtail	100,000	1,000,000		J. Stanton, Jr., 25 Nassau, N. Y.
Briggs	10,000	1,000,000	Gilpin co., Col.	D. Littlejohn, 81 John, N. Y.
Burroughs	100,000	1,000,000		L. Bangs, 22 Pine, N. Y.
Bullion	200,000	1,000,000	Bannock, Montana	55 Liberty, N. Y.
Calvin	200,000	1,000,000	Clear Creek co., Col.	12 Pine, N. Y.
Canadian				A Call, 7 Phœnix B'l'g, Boston.
Chebucto	100,000	500,000	12 miles from Halifax	J. E. M. Gilley, Boston.
Clarendon		500,000	5 miles from Halifax	H. Doane, 41 State, Boston.
Chase	5,000	500,000	Colorado	W. F. Lawton, 81 John, N. Y.
Central Gold M.	20,000	1,000,000	Central City, Col.	L. Bangs, 22 Pine, N. Y.
Central Mining	200,000	1,000,000	Colorado	46 Exchange Pl., N. Y.
Chandiere	100,000	500,000	5,090 A famine Rio, C. E.	Wm. B. Fowle, Boston.
Cobden	100,000	1,000,000	Idaho	New York.
Colonial				W. N. Ely, 7 Trav'r B'l'g, Boston.
Colorado Boston			Colorado	R. C. M'Laughlin, 60 State, Bos'n.
Colorado N. Y.			Colorado	12 Pine, N. Y.
Coleman			Colorado	New York.
Colorado Con of C. H.				New York.
Columbia	30,000	3,000,000	Cedar Hill, Nevada	10 Pine, N. Y.
Consul Gregory	50,000	5,000,000	Austin City, Nevada	30 Pine, N. Y.
Cook & Kimball	1,000	150,000	Gregory Dist., Col.	W. W. Baldwin, 35 Wm., N. Y.
Copulinshee	250,000	5,000,000	Colorado	J. C. Stocker, 30 Pine, N. Y.
Corrisannee	100,000	1,000,000	Parke co., Col.	New York.
Commonwealth			Colorado	Philadelphia.
Corrydonn	100,000	2,500,000	Nevada	46 Exchange Pl., N. Y.
Continental	20,000	2,000,000	Gilpin co., Col.	115 Liberty, N. Y.
Central Gold	200,000	1,000,000	Gregory Dist., Col.	L. Bangs, 22 Pine, N. Y.
Canton				
Dauphin & Colorado	200,000	1,000,000		D. P. Southworth, 423 Walnut, Pa.
Day & Bushnell	300,000	3,000,000	Colorado	T. Chalmers, Jr., 20 Ex. Pl., N. Y.
Denver	50,000	1,000,000	Colorado	J. Wadsworth, 61 Cedar, N. Y.
Devonshire			Gilpin & Clear Creek, Col.	W. Stockbridge, 74 Fr'klin, Bos'n.
Downieville	300,000	300,000		J. C. Harriett, 70 Wall, N. Y.
Dorset			Colorado	F. McIlmsey, 59 Wm., N. Y.
Eagle	100,000	1,000,000	Chandiere River, C. E.	J. P. Davies, 81 John, N. Y.
East Bannack	100,000	200,000	Gold Dirt Dist., Col.	J. Callender, 48 Ex. Pl., N. Y.
Eldorado	500,000	2,500,000	Bannack City, Montana	208 S. Fourth, Phila.
Empire	250,000	5,000,000	San Dist., 9 miles A of Austin	H. K. Gates, 191 B'way, N. Y.
Empire Mill & M			Clear Creek, Col	O. F. Griffin, San Francisco.
Enriquetta				New York.
Esperanza		500,000	Arizona	117 Broadway, N. Y.
Etna	50,000	500,000	Star D., Humboldt co.	C. W. Bryant, Boston.
Excelsior	30,000	300,000	Nevada Dist., Col.	J. Weatherbee, Jr., 11 P. B'g, Bos.
Famine Falls	100,000	1,000,000	Central City, Col.	D. L. Dodge, 30 B'way, N. Y.
Frankfort				D. L. Demmon, 28 C'y W'f, Bos'n.
Garrisons	100,000	5,000,000		C. G. Mease, 29 William, N. Y.
Gem	25,000	1,200,000	Colorado	H. K. Gates, 191 B'way, N. Y.
Georgetown				New York.
Gilbert River			Colorado	C. E. Jackson, 18 Phe'x B'g, Bos'n.
Gilpin				C. W. Galloupe, 76 State, Boston.
Golconda	250,000	5,000,000		J. H. Sherman, 19 Broad, N. Y.
Gold Field				C. B. Cowling, 39 Kilby, Boston.
Gold River				W. H. Cheesman, 9 Central, Bos'n.
Gold Hill	50,000	500,000		W. T. Eustis, Boston.
Gold Mountain			Colorado	New York.
Gold Min'g of Col	50,000	5,000,000	Colorado	E. Latham, 23 William, N. Y.
Good Hope			Colorado	
Gould & Curry				
Gunnel Central				70 Broadway, N. Y.
Gunnel Gold	300,000	3,000,000	Colorado	F. E. Roelfson, 78 & 80 B'way, N. Y.
Gregory	20,000	1,000,000	Colorado	Thos. Wildes, 17 William, N. Y.
Grenada	50,000	125,000	Colorado	J. Stanton, Jr., 284 Pearl, N. Y.
Great Western	60,000	600,000	Colorado	E. Kemeys, 70 Broadway, N. Y.
Gunnel Gold	100,000	1,000,000	Russel Dist., Col.	F. E. Roelofson, 74 B'way, N. Y.
Halifax			Colorado	A Case, 7 Phœnix B'l'g, Boston.
Her'it'ge Ranch	30,000	300,000		
Hope	80,000	2,000,000	El Dorado, Cal.	J. P. Davies, 81 John, N. Y.
Holman	150,000	300,000	G'ld Dirt Lode, Gilp. co., Col.	J. O'Neill, 20 B'way, N. Y.
Humboldt	100,000	500,000	Clear Creek co., Col.	
Idaho	100,000		Colorado	5 Pine, N. Y.
Invincible			Montana	
Isaac's Harbor	100,000	500,000		W. F. Shirley, 135 B'way, N. Y.
Kansas Colorado	100,000	1,000,000	Isaac's Harbor, Nova Scotia	J. G. Greenlies, 111 B'way, N. Y.
Kent			Colorado	G. H. Wyman, 19 Phe'x B'l'g, Bos.
Kip & Buell	100,000	200,000		J. C. Harriott, 70 Wall, N. Y.
Knick'rb'cker & Nevada	100,000	1,000,000		F. Avery, 74 B'way, N. Y.
La Crosse	100,000	$1,000,000	Nevada Dist., Colorado	H. Fales, 12 Pine, N. Y.
Liebig	200,000	1,000,000	Colorado	
Lake Major	12,000	$600,000	Nova Scotia	Fred. Franck, 113 Water, N. Y.
Mariposa Gold	100,000	10,000,000	Bear Valley, Cal.	G. W. Farlee, 34 Wall, N. Y.
Mammoth	50,000	500,000	Colorado	J. Jarrett, 41 Liberty, N. Y.
Manhattan	100,000	1,000,000	Colorado	W. R. Lothrop, 172 B'way, N. Y.
Massachusetts	250,000	1,200,000	Gilpin co., Col.	W. D. Briggs, 11 Phe'x B'l'g, Bos.
Merchants	30,000	600,000	Alturas co., Idaho	157 Broadway, N. Y.
Metropolitan			B'r C'k, St. Bse., Idaho	
Mountain Pride	100,000	1,000,000	near Halifax, Nova Scotia	29 Pine, N. Y.
Montague	50,000	500,000	Griffith Dist., Clear C'k, Col.	C. B. Cowling, 39 Kilby, Boston.
Mount Alpine			Mt. V. & Mam'th Dist., Nev.	J. B. Randol, N. Y.
Mount Vernon	500,000	5,000,000		25 Park Row, N. Y.
Mount Vista	50,000	500,000	Nevada, Ills., Greg'y, Col.	J. Chapman, N. Y.
Montana	100,000	500,000	Colorado	E. W. Hicks, 61 Cedar, N. Y.
Montezuma	100,000	500,000	Clear Creek co., Col.	F. B. Webster, Boston.
Montrose	100,000	1,000,000	Owyhee co., Idaho	C. A. W. Sibley, 80 B'way, N. Y.
Morning Star		5,000,000	Mexico	137 B'way, N. Y.
Mexican Pacific	100,000	10,000,000	Calaveras co	J. Mackie, 88 Wall, N. Y.
Melanes & Stan			So on. Boulder C'k, Col.	406 Mont, San Francisco.
National	300,000	3,000,000		31 School, Boston.
Nevada Star			Black Hawk, Col.	25 Pine, N. Y.
New England	50,000	150,000	near SantaFe	J. Weatherbee, Jr., Boston.
New Mexico				
New Gregory			G'd Canon D't, Land. co. Nev.	W. A. Kent, 144 State, Boston.
New York City	50,000	5,000,000	Austin, N. Y. Dist., Nevada	10 Pine, N. Y.
New York Dist.	50,000	500,000		71 B'way, N. Y.
New York of Col	100,000	1,000,000	Nevada	F. E. Roelfson, 74 B'way, N. Y.
N. Y. & Nevada	100,000	1,000,000	Colorado	J. J. Osborn, 30 Pine, N. Y.
N. Y. G Min'g	100,000	1,000,000	Nevada	F. E. Roelofson, 78 & 80 B'way.
N Y. & Eldor'do			Idaho	106 B'way, N. Y.
N. Y. & Idaho			Nevada	180 Chatham, N. Y.
N. Y. & Santa Fe				New York.
N. Y. & O. G. & S. M.		1,000,000	Owyhee co., Idaho	137 Broadway, N. Y.
N. Y. & O. F. G. & S. M.	10,000	1,000,000	Owyhee co., Idaho	4 Pine, N. Y.
N. Y. & Reese R.			Nevada	New York.
N. Y. & Washoe			Nevada	New York.
North Clear C'k.	100,000	1,000,000	Gilpin co., Col.	J. Francis, 80 B'way, N. Y.
Nova Scotia				Chas. Barrett, 13 Doane, Boston.
N. Y'k & Nova Scotia	100,000	1,000,000	Nova Scotia Tangier, Nova Scotia	Jos. E. Gay, 3 Hanover, N. Y.
National S Min'g		1,500,000	Owyhee co., Idaho	115 B'way, N. Y.
Occidental	5,000	500,000	Nevada & Ills. C. Dist., Col.	100 B'way, N. Y.
Oldham				Chas. Barrett, 13 Doane, Boston.
Ophir	62,500	625,000	on Comstock Lode, Nevada	Virginia City, Nevada.
Pacific	40,000	4,000,000		24 Pine, N. Y.
People's	100,000	5,000,000	Alpine & Sierra cos.	8 Pine, N. Y.
Peck				E. R. Sawyer, 144 State, Boston.
Perigo	60,000	3,000,000	Ind. Dist., Gilpin co., Col.	J. W. Stratton, 99 B'way, N. Y.
Pengo				
Pine Mountain	30,000	3,000,000	Pine Mountain Dist., Nev.	100 B'way, N. Y.
Pioneer & Inskip			Buena Vista Dist., Nevada	15 Nassau, N. Y.
Phila. & Color'do	20,000	1,000,000	Central City, Col.	E. W. Clark & Co., Phila.
Phelps & Gilm're			Colorado	New York.
Pleasant Valley	125,000	1,250,000	Colorado	J. S. Lyon, 69 Wall, N. Y.
Pontiac	50,000	1,000,000	Ill. Cen. M Dist., Col.	R. H. Rickard, 19 Nassau.
Prescott	100,000	1,000,000	Central Arizona	69 B'way, N. Y.
Prince Albert				W. H. Chessman, 9 Central, B'stn.
Quaker City			Ind't D't. G'd D't City, Col.	103 South Third, Phila.
Quartz Hill	40,000	100,000	Nevada Dist., Col.	J. A. Tyler, 29 Wall, N. Y.
Quincy	20,000	200,000		W. H. Smith, 51 Ex. Pl., N. Y.
Rancho C'k	10,200	1,200,000	Pine Wood Dist., Nevada	18 Broad, N. Y.
Realito		1,600,000	G'd Hill D., Storey co., Nev.	117 B'way, N. Y.
Renfrew				W. Stockbridge, 74 F'klin, Bos'n.
Republic	15,000	1,500,000	Amador D., Lander co., Nev.	57 Exchange Pl., N. Y.
Rocky Mountain	50,000	500,000	Grey & Empire Dists., Col.	E. L. Bolles, 49 Ex. Pl., N. Y.
Reciprocity	100,000	1,000,000	Canada East	B. B. Grant, Jr., 71 B'way, N. Y.
Scorpion			Virginia City, Nevada	617 Clay, San Francisco.
Sherbrooke	100,000	1,000,000	Sherbrooke, Canada East	F. Schumacker, Cliff, N. Y.
Silas Wright	60,000	600,000	Amador D., Lander co, Nev.	18 Wall, N. Y.
Silver State	100,000	500,000	Humb't Starr, Pr. R. D. Humb't co., Nevada	R. S. Miller, 49 William, N. Y.
Silver Wave	300,000	3,000,000	Resee riv, Lander co., Nev.	Emmet Blair, 243 B'way, N. Y.
Smith & P'rmlee	125,000	2,500,000	Colorado	G. A. Lathrop, 4 Broad, N. Y.
Spanish		3,000,000	La Plata, Churchill co., Nev.	228 South Third, Phila.
So. Clear C'k			Colorado	Canastota, N. Y.
Starlight Ledge	50,000	500,000	P'ville, El Dorado co.	
Star of Color	200,000	2,000,000	Colorado	J. N. Powers, 22 Pine, N. Y.
Standard	50,000	500,000	Gregory Dist., Col.	T. A. Mitchell, 12 Wall, N. Y.
Steptoe	20,000	2,000,000	G'd Can., Lander co., Nev.	157 B'way, N. Y.
Sterling City		1,250,000	Colorado	New York
Stewart	100,000	500,000	Colorado	C. Durham, 31 Exchange, Boston.
Suffolk				Carlos Cobb, 22 William, N. Y.
Southard				Wm. Wallace, 11 Doane, Boston.
Stafford				C. E. Jackson, 15 Central, Boston
Tascher	100,000	1,000,000	Colorado	F. J. Wright, 8 Wall, N. Y.
Triunfo			San Antonio, L. Cal.	San Francisco.
Union	240,000	12,000,000	Colorado	New York.
United States	75,000	1,500,000	Colorado	J. P. Stevens, N. Y.
Victoria				W. H. Chessman, Central, B'stn.
Wauba Yuma	600,000	6,000,000	Arizona	35 William, N. Y.
Waddingham	24,000	600,000	Alturas co., Idaho	157 B'way, N. Y.
Waverley				J. Leighton, 97 State, Boston.
Windsor Gold M	10,000	100,000	Colorado	25 William, N. Y.
Wilson & Cass			Colorado	New York.

MARKET REVIEW.

FRIDAY EVENING.

The price of Gold has been somewhat more unsteady during the past week, but on the whole has declined. The lowest price reached was 125. The price this afternoon, at 3.30, was 126¼.

The rates of foreign exchanges have advanced. Bankers' Bills on London, at 60 days, 107¼ @ 107⅜; on Paris, 5f. 25c.

Money is easy, at 5 per cent. On Government securities, 4 @ 4½ per cent. at call.

The following statement shows the movement of specie at New York for the month of March, and since Jan. 1:

Imports from foreign ports	$ 285,854
Received from California	3,967,556
Total receipts	$4,253,410
Exports to foreign ports in March	1,045,039
Gain in March	$3,208,371

Brought forward for three months:

Imports in January	$72,771	
Imports in February	172,122	
Imports in March	285,854	
		$530,747
From California in January	$1,487,967	
From California in February	3,604,372	
From California in March	3,967,556	
		9,059,895
Receipts since January 1		$9,590,642
Exports in January	$2,706,336	
Exports in February	1,807,030	
Exports in March	1,045,039	
		5,558,405
Gain since January 1, 1866		$4,032,237

The Stock market is firmer, but without activity.

The Metal market shows no improvement.

Iron.—Not much doing at present. There is a falling off in demand of about 1,000 tons per day, owing to the strikers at Albany and Troy. The imports of Iron

	BAR.	PIG.	SHEET.
To 31 March, 1866, are	6,358 tons.	15,275 tons.	106,700 tons.
To same time, 1865	2,655 "	990 "	38,140 "
Increase	3,703 tons.	14,285 tons.	68,560 tons.

Copper.—The price of Ingots is lower. In England the price of Copper, by the last advices, has fallen £5 per ton.

Tin.—The "London Mining Journal" says: "The Banca Tin sold in Holland, on the 22d ult., was 111,800 slabs, and realized, on the average, 49¾ fls., equal to £87 10s. per ton in London, considerably lower than it has been for the past fourteen years."

The imports are:

To March 31, 1866	38,838 pigs.	194,970 boxes plates.
To March 31, 1865	18,040 "	74,320 " "
Increase	20,798 pigs.	120,650 boxes plate.

Lead.—No improvement. Imports

To March 31, 1866	125 850 pigs.
To March 31, 1865	49,200 "
Increase	76,650 pigs.

Spelter.—The imports are:

To March 31, 1866	91,560 plates.
To March 31, 1865	3,738 "
Increase	87,822 plates.

Coal.

The Pottsville "Miners' Journal," of 8th inst., says:

"The quantity sent by railroad this week is 63,511.19; by canal, 38,726.10; for the week, 102,238.09 tons, against 93,401 tons for the corresponding week last year. The shipments are heavy, and prices are a little firmer than they were last week. They were stiffened up a little by the advance on prices at the last auction sale. Second quality of Coal is dull and prices low. There were turnouts at some of the collieries to resist a reduction of wages to meet the reduction in the price of Coal. At several they have gone to work again at the reduced rates. We learned yesterday that there was some falling off in the supply sent forward. The trade sums up this week as follows, compared with last year:

1865.		1866.	
Week.	Total.	Week.	Total.
167,813	1,721,577	184,812	1,967,243
		167,831	1,698,312
	16,599		269,931

The increase so far this year reaches 269,931 tons. The low price of coal is increasing the consumption very materially.

Freight from Port Richmond to New York has receded to $1,60. This will, no doubt, cause a reduction on the Schuylkill Navigation. The present rates by canal are $2 75 from the coal region, making 15 cents in favor of the railroad."

Petroleum.

NEW YORK, April 13th, 1866.

The same dullness pervades this market as noticed in our last report, and prices are somewhat lower again, notwithstanding gold has been firmer, and the news from Europe better. The stock of oil is abundant, in both crude and refined. Crude oil on spot, 24 *a* 24½c.; future delivery, 26c.; Refined in bond on spot, 36 *a* 38c.; future delivery, 46c.; Refined, free of tax, 57 *a* 60c; future delivery, 64c.; Bond oil in tin cans, 48 *a* 51c.; free on board, ... Naptha or Benzole, in sympathy with oil, is dull, quiet and lower. Bond 17c.; free of tax, 37c.; in tin cans, (bond), 37c.; for prime white deodorized. Respectfully, etc.,

J. A. THERIOTT, Broker, No. 5 William Street.

OIL RECEIVED AT PITTSBURG.

	BY RIVER.	RAIL.	TOTAL.
During the week ending April 7	30,070	2,705	32,775
Since January 1, 1866	139,200	61,704	200,913
	169,270	64,418	233,688
Same time in 1865	43,008	30,406	73,404
Increase in 1866	126,262	30,012	160,284

NEVADA STOCKS.

San Francisco Quotations.

LATEST BY MAIL.

NAME.	FRIDAY, March 16.		Sales per week Ending March 16.	
	Open'g	*Clos'g*	*Shares.*	*Amount.*
Sierra Nevada	$	$	270	$ 3,173 00
Imperial	157½	143	501	85,611 00
Gould & Curry	.....	.....	2	2,100 00
Chollar—Potosi	392½	390	295	111,289 00
Yellow Jacket	735	695	362	232,502 00
Bullion	90	90	209	16,301 00
Crown Point	.....	.....	22	26,280 00
Belcher	285	272	206	65,113 00
Overman	62½	70	508	39,962 00
Ophir	650	665	466	307,358 00
Hale & Norcross	1000	1000	55	8,390 00
Exchequer	11	9	195	1,931 00
Savage	975	990	148	143,785 00
Empire Mill	215	214	123	26,868 00
Alpha	300	300	9	3,010 00
Blue Ledge	1	¾	230	237 00
Lady Bryan	.....	.....	110	382 00
Daney	12	12	237	3,125 00
California Tunnel	3	3	30	90 00
Balt. American	7	7	20	170 00
Real del Monte	.....	.....	.....	.....
Confidence	72½	68	534	40,308 00

LATEST BY TELEGRAPH.

SAN FRANCISCO, April 4.

Name.	Bid per foot.
Gould & Curry	1000
Savage	1090
Chollar—Potosi	385
Ophir	775
Hale & Norcross	900
Crown Point	1400
Yellow Jacket	
Belcher	375
Alpha	450
Imperial per share	150

NEW YORK METAL MARKET.

[CORRECTED WEEKLY.]

ANTIMONY	Regulus, per lb	13 *a* 14 c.
	Crude,	
BISMUTH		
BORAX		33 c.
BRIMSTONE		5 c.
	Crude, per ton	67 50 *a* 72 50
COPPER, Ingot,	Lake Superior, per lb. cash,	29 *a* 30 c.
	Baltimore,	
	Pig Chili,	
	Bolts	
	Braziers,	
	Sheathing,	45 c.
	Yellow metal,	34 c.
IRON—PIG,	No. 1 Scotch, per ton,	42 *a* 45
	No. 1 American,	4 *a* 43
	No. 2, "	40 *a* 45
	No. 1 Charcoal,	
BAR	Swedish, ordinary sizes	150 00
	Amer. & Eng. refined	115 00 *a* 120 00
	" " common	105 00 *a* 110 00
	Rails, Amer. currency	85
	" Eng. gold	56
	Horse shoe iron	140 00 *a* 147 50
	Rods 5-8 and 3-16 round and square	1 22 1-2 *a* 1 85
	Band	145 00
	Nail rods, 5-8 and 3-16,	1 22 1-2 *a* 1 85
	Hoops	145 00 *a* 215 00
	Sheets, Russian, per lb	31 *a* 32
	" English "	7 *a* 9 1-2
	" American "	25
	Boiler Plates, Eng,	
	" Amer.	
STEEL	Best cast in Bars, war	22
	Best sheet cast "	22
	Best cast circular saw plates 46 in.	28
	Double shear steel, war	22
	Single " " "	19
	Montague & Co. C. S. in bars	19
	Round machinery cast	15
	Best German	15
	Govt. German	12
	Eagle German	13
	(L.) Blister, war	19
	W. Jessop & Sons, blister, war	16
	Double refined	24
	Stone Axe shapes	24
	Common blister	13
	2d quality sheet	19
	3d quality sheet	16
LEAD	American Per 100 lb	
	German	8 25 *a* 8 45
	Spanish	8 25 *a* 8 45
	English	8 25 *a* 8 45
	Bar, per lb	9
	Pipe and sheet	11 3-4
TIN	Banca Govt., per lb., gold	24
	Straits	23 *a* 23 1-2
	English	22
TIN PLATES	IC, 10-14 prime charcoal	$14 00
	IX 10-14 " "	16 75
	IC 12-12 " "	14 50
	IX 12-12 " "	17 25
	IC 14-20 " "	15 00
	IX 14-20 " "	17 75
	IC 14-20 Roofing ch. 1st	13 00
	IC 14-20 " " 2d	12 00
	IC 14-20 " Coke	9 75
	IC 10-14 Coke	11 75 *a* 14 00
SPELTER	American, per lb	9 1-2 *a* 10
	Foreign " "	
ZINC	Mussulman & Amer	12 1-2 *a* 13
SOLDER	No. 1,	24
	No. 2,	22

LONDON METAL MARKET.

LONDON, March 23d, 1866.

		£.	s.	d.	£.	s.	d.
COPPER	Best selected, Per ton,	94	0	0			
	Tough Cake & Tile "	91	0	0			
	Burra Burra, "	93	0	0			
	Copper wire, per lb.		12				
	Do. Tubes "		12¾				
	Sheathing & Bolts per ton,	96	0	0			
	Bottoms "	101	0	0			
	Old (Exchange.) "	82	0	0			
IRON	Bars Welsh in London	7	10	0	*a* 8	0	0
	Do., to arrive	7	10	0	7	12	6
	Nail Rods	8	7	6	9	5	0
	Do. Stafford in London	8	15	0	8	17	6
	Bars Do.	8	15	0	10	0	0
	Hoops Do.	9	15	0	10	10	0
	Sheets, single	10	7	6	11	0	0
	Pig No. 1 in Wales	4	5	0	4	10	0
	Refined Metal, Do.	4	0	0	5	0	0
	Bars Common Do.	6	15	0	7	5	0
	Do. Merch. Tyne or Tees	7	10	0			
	Do. Railway in Wales	6	7	6	6	10	0
	Do. Swede in London	11	10	0	12	0	0
	To arrive	12	0	0			
	Pig No. 1 in Clyde	3	16	6	4	5	6
	Do. f. o. b. Tyne or Tees	2	9	6			
	Do. Nos. 3, 4, f. o. b. Do.	2	6	6	2	5	6
	Railway Chairs	5	10	0	5	15	0
	Do. Spikes	11	0	0	12	0	0
LEAD	English Pig Common	21	0	0			
	Do. ordinary soft	21	5	0			
	Do. (W. B.)	22	10	0			
	Do. Sheet	21	10	0	21	15	0
	Do. Red Lead	23	10	0	24	0	0
	Do. White	27	0	0	30	0	0
	Do. Patent Shot	23	15	0	24	0	0
	Spanish	20	2	6	20	5	0
	Sheets, per lb.		10¾				
	Wire "		10¼				
	Tubes "		11½				
STEEL	Swedish in Kegs (rolled) per ton	13	0	0	14	0	0
	Do. (hammered)	15	0	0	16	0	0
	Do. in faggots	16	0	0	16	10	0
	English Spring	19	0	0	23	0	0
	Quicksilver per bottle	8	0	0	nom.		
SPELTER	Foreign per ton.	24	0	0			
	To arrive "	24	0	0			
ZINC	In Sheets	30	0	0			
TIN	English Blocks	91	0	0			
	Do. Bars in barrels	92	0	0			
	Do. refined	94	0	0			
	Banca	87	5	0			
	Straits	83	10	0	*a* 85	0	0
TIN PLATES*	I C Charcoal 1st qu. pr. bx.	1	15	0			
	I X Do. 1st quality "	2	1	0			
	I C Do. 2nd quality "	1	13	0			
	I X Do. 2nd quality "	1	19	0			
	I C Coke	1	8	0	*a* 1	9	6
	I X Do.	1	14	0	1	15	0
	Canada Plates per ton	13	10	0			
	In London: 20 s. less at the works.						
	Yellow Metal Sheathing per lb.		9				
	Sheets per lb.		9				
	Indian Charcoal Pigs in London	7	0	0	7	10	

* At the works, 1s. to 1s. 6d. per box less.

COPPER ORES.

SOLD AT TABB'S HOTEL, REDRUTH, MARCH 22.

MINES.	TONS.	PRICE.	MINES.	TONS.	PRICE.
Devon Gt. Con.	1830	£8856 5 0	Bedford United	149	£648 12 0
Hingston Down	560	2303 8 6	Wheal Emma	115	729 13 6
New Wh. Martha	385	697 4 6	Lady Bertha	100	190 0 0
Okel Tor	330	987 10 0	New Cornish	99	417 0 0
Marke Valley	302	1092 11 6	Gawton Copper	91	352 5 0
East Caradon	220	776 0 0	Fursdon	33	109 14 6
Wh. Friendship	203	1188 5 0	West Boan	14	126 14 0
East Wh. Russel	189	934 14 0	Collacombe	13	34 9 0
Wheal Crelake	170	446 5 0			

Average Standard, £120 18 0; Average Produce, 5¾; Average Price Per Ton, £4 3 0; Quantity of Ore, 4,803 Tons; Quantity of fine Copper, 273 Tons 15 cwt.; Amount of Money, £19,890 11 6.

LAST SALE.

Average Standard, £116 8 0; Average Produce, 6¼; Standard of Corresponding Sale Last Month, £120 12 0; Produce, 6⅛.

BY WHOM THE ORES WERE PURCHASED.

NAMES.	TONS.	AMOUNT.
Vivian & Sons	851½	£3,308 6 9
Freeman & Co	330	1,492 9 0
Grenfell & Sons	429½	2,681 6 0
Sims, Williams & Co	731 1-6	2,969 17 8
Williams, Foster & Co	1051 1-6	4,218 5 7
Mason & Elkington	553 1-6	1,938 16 6
Copper Miners' Company	329	1,246 10 6
Charles Lambert	407	1,676 10 3
Sweetland, Tuttle & Co	120½	358 9 3
Total	4 833	£19,890 11 6

PACIFIC RAILROAD.—It is stated that the Pacific Railroad Company have made a contract with the American Bureau of Mines, to examine and report upon the first 100 miles of the Road—with a view to ascertain the value of the minerals contained therein. Workmen have commenced laying the track of the Leavenworth branch of the Union Pacific Railroad, at the junction, three miles east of Lawrence. The contractors have completed arrangements by which they can lay about half a mile a day until the road is finished. It has been announced that the bill granting land to aid in the construction of a railroad from Springfield, Mo., to the Pacific coast, and incorporating the Atlantic and Pacific Railroad Company, had passed the United States Senate. The capital stock consists of one million shares of $100 each, ten per cent. cash, payment to be made at the time of subscription. The road is to be built of American iron, of uniform gauge.

PROSPECTUS.

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THE ANNUAL REPORT OF THE DIRECTORS OF THE NINTH NATIONAL BANK TO THE STOCKHOLDERS.

NEW YORK, January 9, 1866.

The election was held this day, and the undersigned were unanimously re-elected Directors for the ensuing year. For this renewed and flattering expression of confidence on the part of the stockholders, the Directors return their thanks. The following is a STATEMENT OF THE CONDITION OF THE BANK, TUESDAY MORNING, January 2, 1866.

RESOURCES.

Loan and Discounts	$3,596,645 63
Government Securities	1,884,625 54
Furniture and Fixtures	13,000 00
Specie and Legal Tender	2,382,294 66
Checks and Bills on other Banks	959,171 71
Due from Banks and Bankers	756,111 23
	$9,591,848 77

LIABILITIES.

Capital Stock	$1,000,000 00
Surplus Profit after Paying Dividends	192,294 56
Dividends unpaid	53 336 58
Circulation	894,940 00
Deposits	7,451,367 63
	$9,591,848 77

In explanation we will say, that during the fiscal year, we have paid two Dividends of FIVE per cent. each, and the government taxes. And now exhibit an actual SURPLUS, over and above all losses, expenses and dividends, of NINETEEN per cent. on the CAPITAL STOCK From the earnings of the last six months we have applied $50,000, that is FIVE per cent. on the Capital Stock, to the extinguishment of the premium account; and although the Stockholders do not get this Five per cent. in a dividend, yet it is represented in the United States Stocks held by the Bank. During the past year, your Bank became a member of the New York Clearing House Association, by an unanimous vote of that body. We are able to report, that your Bank has well fulfilled its patriotic mission, of aiding the placing of the Government Loans. The amount of subscriptions to the 7-30's was Forty-three Millions Two Hundred and Sixty-two Thousand Three Hundred Dollars ($43,262,300), this being the largest susbcription taken by any one Bank. To appreciate this result, we would remark, that had nineteen other banks taken each the same amount, the whole loan would have been taken by the twenty. This gives us opportunity to say, that having served our beloved country in its hour of peril, we desire now to turn all our efforts to the securing, in all legitimate and honorable ways, the increase of our business with the community; to that end we invite the cordial co-operation of each Stockholder. Our organization is now so well perfected as to give us all much satisfaction, and the relief from so much government business, gives our officers time to attend to individual dealers. Our deposits have been large, at times, during the year, reaching almost Twenty-one Millions of Dollars; but that was during the time the people were rushing to us with patriotic zeal, to offer their money to their country; now we can take the deposits of the business community; and we hold ourselves in readiness to DISCOUNT GOOD BUSINESS PAPER, payable at short dates. Such paper, being based on the sale of commodities, is, in our opinion, the safest business a bank can do.

DIRECTORS.

WILLIAM A. KOBBE, THOMAS A. VYSE, Jr., GEO A. WICKS, BARNET L. SOLOMON, GEO. A. FELLOWS, SOLOMON L. HULL, CHAS. MINZESHEIMER, J. O. WHITEHOUSE, JOSEPH U. ORVIS.

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The Machines now offered for sale are:

No. 1	Hand machine for ONE man, weighing 100 lbs., with 3 drills, complete	$ 200 00
No. 2,	" TWO " 125 " "	250 00
No. 3,	1 horse power Machine, weighing 150 lbs., with 8 ft. steam hose, 3 drills, complete,	450 00
No. 4,	2 " " " 300 " " " " "	850 00
No. 5,	Machine for VERTICAL drilling, *without engine*, to drill holes 4 to 6 inches diameter, with timber frame on wheels, &c.	1,000 00
No. 6,	Machine (entirely of iron), drilling at any angle holes 4 to 8 inches diameter, with *nominal* 4 horse power engine (on truck, and moved by own engine),	2,500 to 3,000 00

These are the only machines that have done regular work in this Country, and are the most Simple, Compact and Economical. We invite the closest scrutiny. A full sized Mining Drill can be seen daily in operation at the Machine Shop of STERLING & KERR, No. 344 and 346 West 24th street, West of 10th avenue.

Certificate.

NEW YORK, March 25, 1866.

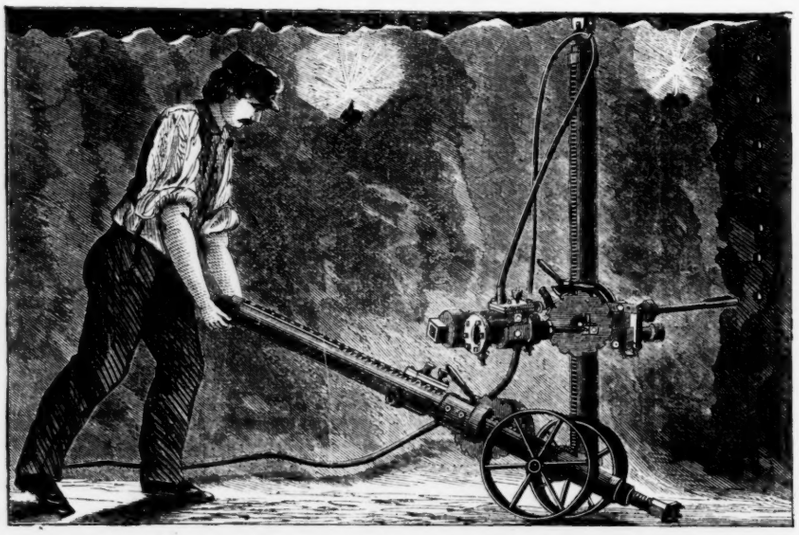
MR. G. A GARDNER, Sec'y N. Y. Rock Drill Co.:

SIR—After witnessing the operation of your Rock Drilling Engines on several occasions. . . . I am satisfied that they are capable of boring much faster than by HAND in any kind of rock, and will operate with about equal efficiency at any angle in a vertical or horizontal plane; that they can work in confined spaces, such as shafts and drifts of mines, railroad tunnels, etc., etc.; that several drills can be used where only one could be operated by hand labor. These Machines may be driven by compressed air. It appears to me highly probable that the time required to open mines by machinery may not be more than one-fourth of that which is now required.

The advantages resulting from such a reduction of the time can hardly be over estimated.

Very respectfully,

GEO. D. EMERSON, Mine Engineer,
Late of Lake Superior, Mich.



Certificate.

No. 95 Liberty street,
NEW YORK, March 23, 1866

MR. G. A. GARDNER, Secretary N. Y. Rock Drill Co.

DEAR SIR: Respecting the "Gardner Drill," I would say, we used it with perfect success on the Niagara Falls Canal. When we first worked it, we drilled in the solid limestone, holes of the diameter of six inches, at the rate of eighteen inches deep, in twenty minutes.

We used it for several months on the regular work, and found it more economical and effective than any other drill we have ever used. The rock is the hardest kind of blue limestone, with occasional boulders of quartz imbedded in it. You are at liberty to refer parties to me who may desire more particulars.

S. M. ALLEN
Late President of Niagara Falls Wate. Power Company

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These machines are very compact, measuring—independent of supporting columa, etc.—30 inches in length by 12 inches breadth and depth, and weighing only 250 lbs. One man can move and adjust them to the work. The supporting columa is held firmly in place by setting out the jack-screw, thus bracing it between the top and bottom of tunnel, or the sides of shaft, and the machines are raised and lowered by a gear working in the rack on side of column, while the attachments to the columa form a *universal joint* and allow the machines to work *at any angle*. They are automatic; one engineer can attend to a gang of four or five, working on the same face. Six of them can be worked in a heading four and a half by six feet; and in a shaft six by twelve feet, eight of them can be worked at once. In a railroad, or other large tunnel, an increased number of machines can be operated, being supported and moved upon a carriage running on rails. The blow is struck by the drill being projected by the reactive force of an india rubber spring, against the rock, the drill being as free from the working machinery at the instant of striking, as an arrow shot from a bow; 300 blows per minute can be given with the utmost force the steel-drill point can bear. The cross-head to which the drill is attached is drawn back; (thus compressing the spring) by a cam rotated directly by the piston rod of an oscillating cylinder, the drill point has an automatic turning motion, and the entire machine an automatic feed, *self-regulating*, according to the varying hardness of the rock; the machine working equally well with the same adjustment when drilling on flint, or on granite cutting two inches deep per minute, or on micaslate, sandstone, or other softer rocks, cutting four and six inches per minute. They drill equally well at any angle, and with them holes can be put in the most difficult places with great facility.

Machines for open cuts have been worked for several years on railroad and canal excavations, operated by four-horse engines drilling four, six and eight-inch diameter holes, and doing the work of fifty men. Rock-Drilling can be done with these machines for one-tenth the cost of hand labor, and in one-tenth the time. We are prepared to furnish machines with *gangs of drills* for splitting granite, marble, etc.; *channelling machines* for marble, etc., when blasting is to be avoided; also machines for cutting the "BEARING IN" in coal: we also manufacture the GARDNER PATENT DRILL POINTS, especially desirable for sinking oil wells; making round holes, requiring no reaming, and cutting faster than any other point.

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